MILLERS FALLS TOOLS

CATALOGUE No. 35

MILLERS FALLS COMPANY

E. P. STOUGHTON, *President*
GEO. W. NIMS, *Secretary*

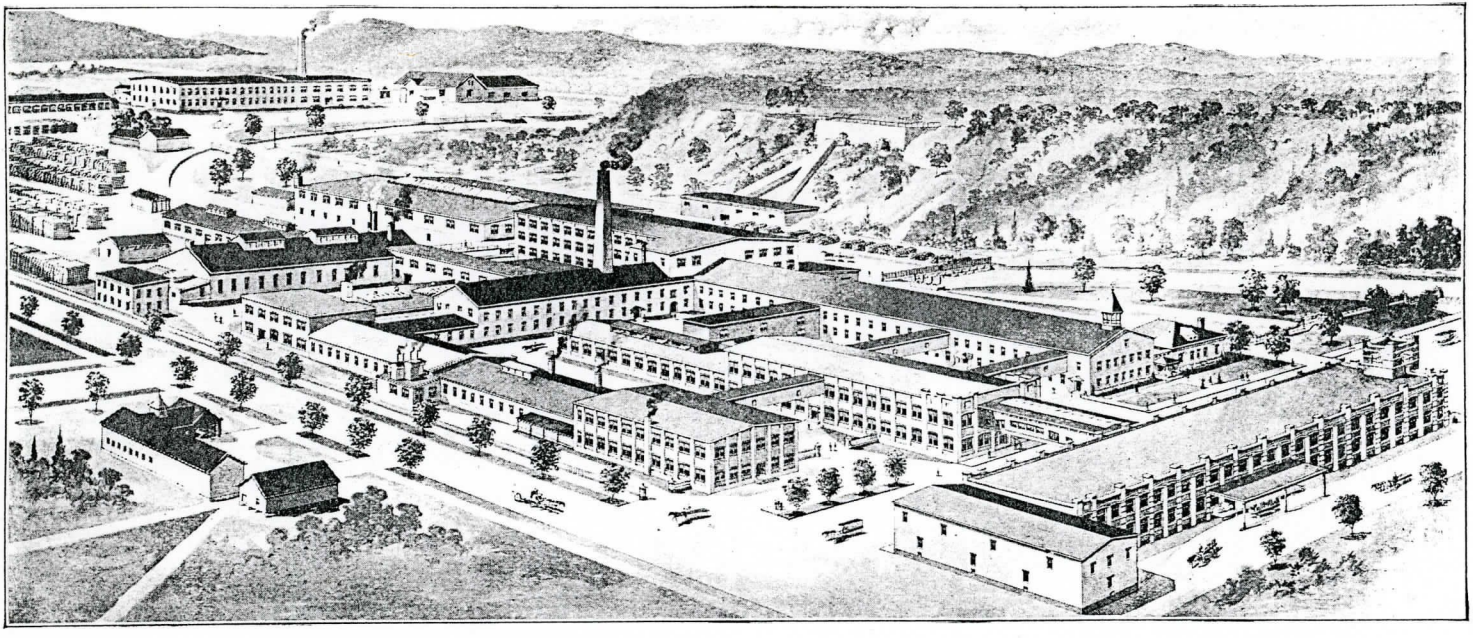
1915

Works and Domestic Sales Office:
MILLERS FALLS, MASS., U.S.A.

Warehouse and Export Sales Office:
28 Warren Street, NEW YORK, U.S.A.

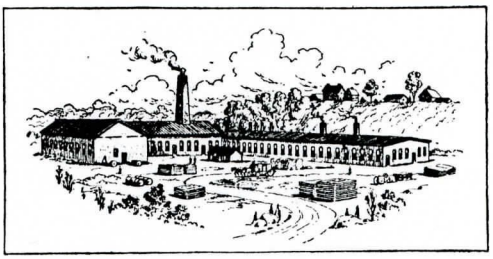
Catalogue No. 35

Cable Address, TIGNONA



THE MAIN WORKS OF THE MILLERS FALLS COMPANY
AT MILLERS FALLS, MASS., U. S. A.
IN THE YEAR 1912

(All buildings shown in the above illustration are a part of our works)



1873

Introduction

In compiling this volume especial pains have been taken to group together tools of the same and kindred classes, and to express all the principal facts as briefly and clearly as possible.

The great variety of tools of any one kind that we make, especially bit braces and drills, is to meet the varied demand from all quarters of the world. It will be seen that the varieties are so grouped as to make the variations apparent and simplify the selection of any desired styles, for instance, pages 38 to 41 show six hand drills all closely similar to each other. Either through our traveling representatives or correspondence, we will give conscientious advice as to assortments of different lines of our tools that will best fit the dealer's need.

Among the chief developments of the Millers Falls Company since issue of previous edition of catalogue is its Co-operative Selling Service. This has been built up from a close analysis of trade requirements and fits into the most successful practice in the tool business. This volume, because of its general distribution, is not fitted to explain regarding this Service, but inquiries from dealers will be welcomed.

The quality of Millers Falls tools has never been more carefully guarded than at this time. Millers Falls reputation is built on guaranteed satisfaction and this is the first consideration with us.

It is especially recommended that our new tools, so indicated on pages following this, receive consideration, as these embody the sum of Millers Falls ingenuity and experience in tool making.

The trade-mark shown on the outside of cover was adopted in October, 1914. Simple as it is, it was selected only after discarding a host of other designs that were first proposed. In making the selection, simplicity, clearness and strength were the features sought for.

Visitors to our office and store at 28 Warren Street, New York, or to our works at Millers Falls, Mass., will receive a cordial welcome. Greenfield, Mass., is the center for the district including Millers Falls, and inquiry there will put visitors in touch with members of our Company residing in Greenfield.

MILLERS FALLS COMPANY.

November 1, 1915.

Box Labels

This is a matter of such vital importance to the dealer that we have made a special study of it and evolved such labels as illustrated above. The effects sought are as follows :—

(1) On top of box the features of the tool are given in brief form so that, even if the clerk is not familiar with the tool, he can bring out its good points in selling.

(2) A short description of another tool leading to more sales.

(3) Liberal space is left on the end label for prices.

(4) Number on end of box is on a bright red square that makes it stand out strongly and easily read at a distance.

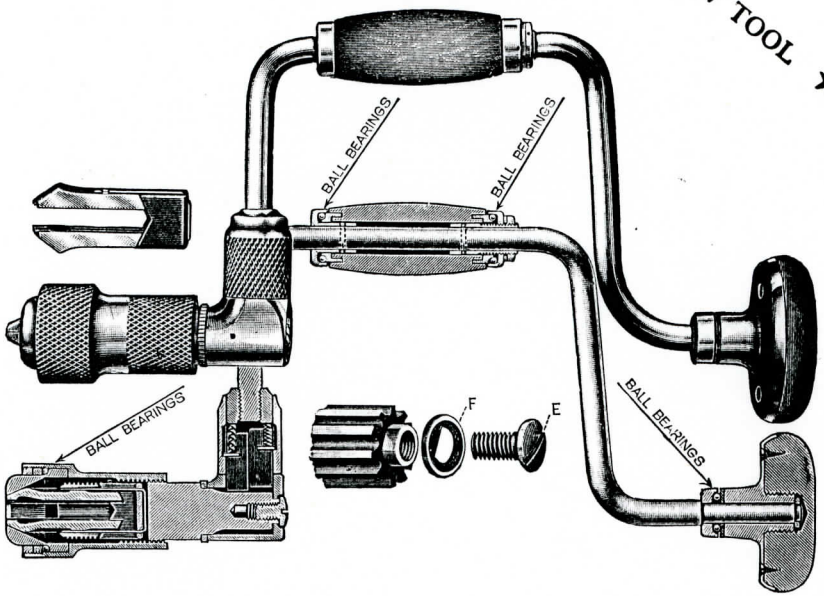
(5) Name of tool and maker are also easily seen at a distance.

NOTE. *Paragraph numbers refer to illustration above.*

LION RATCHET BRACES

Nos. 870 to 873

★ NEW TOOL ★



POLISHED AND NICKELED steel; fancy tropical wood.

BALL-BEARING STEEL CLAD head.

NON-SPLITTING, ADJUSTABLE BALL-BEARING, always **FREE-ACTING** sweep handle.

The ball-bearing feature is of much importance in operation of the tool.

Covered, **DUST-PROTECTED** ratchet parts.

Patent cup washer (F) and screw (E) to hold chuck to sweep **WITHOUT WORKING LOOSE.**

UNBREAKABLE jaw socket made from bar steel.

Chuck shell **BALL-BEARING,** with **CASE HARDENED HOOD** and with **POWERFUL GRIP** upon bit shanks and easily released when desired.

FORGED STEEL JAWS, holding positively and securely, and centering with reasonable accuracy, **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, No. 1 Morse **TAPER,** and all sizes of **BIT STOCK** and **EXPANSION** bit shanks.

THIS IS THE SUPREME PRODUCT OF THE BIT BRACE MAKER'S SKILL.

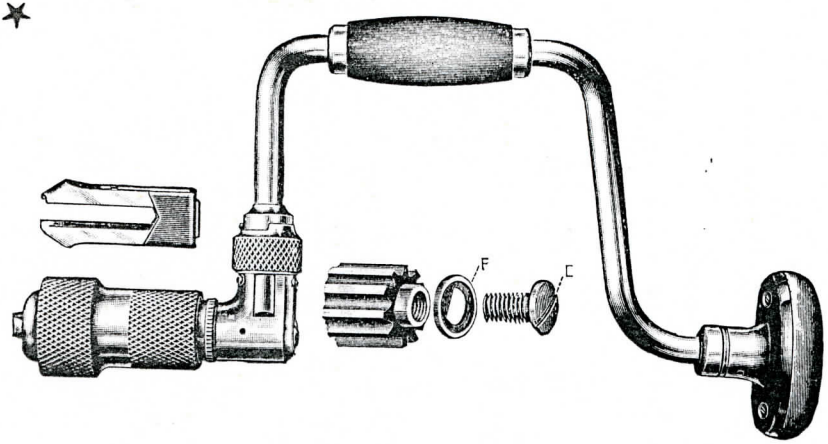
Nos.	870	871	872	873
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	53¼ lbs.	48 lbs.	45 lbs.	42 lbs.
Price, per dozen	**$42.00**	**$40.00**	**$38.00**	**$36.50**

Packed $\frac{1}{6}$ dozen in a pasteboard box and 3 dozen in a case.

LION RATCHET BRACES

Nos. 769 to 774

★ NEW TOOL ★



POLISHED AND NICKELED steel; fancy tropical wood.

BALL-BEARING STEEL CLAD head.

NON-SPLITTING, always **FREE ACTING** sweep handle with **INSERTED BRASS RINGS.**

Covered, **DUST-PROTECTED,** simply constructed ratchet parts, with exposed dogs.

Patent cup washer (F) and screw (E) to hold chuck to sweep **WITHOUT WORKING LOOSE.**

UNBREAKABLE jaw socket made from bar steel.

Chuck shell **BALL-BEARING,** with **CASE-HARDENED HOOD** and with **POWERFUL GRIP** upon bit shanks and easily released when desired.

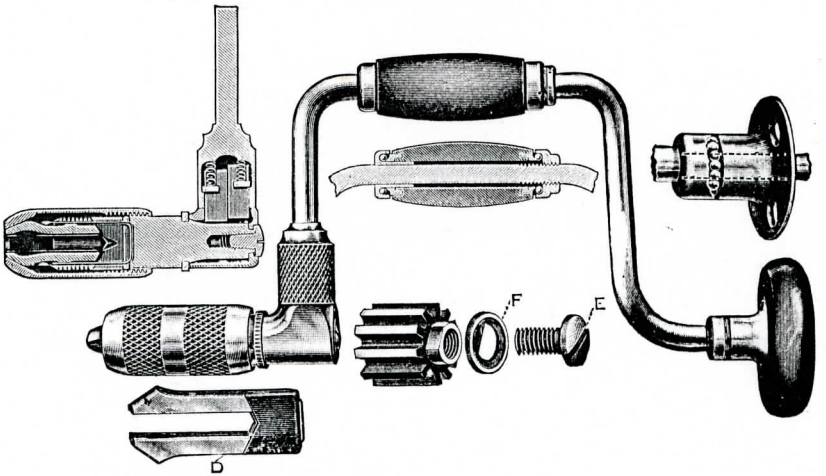
FORGED STEEL JAWS, holding positively and securely, and centering with reasonable accuracy, **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, No. 1 Morse **TAPER,** and all sizes of **BIT STOCK** and **EXPANSION** bit shanks.

Nos.	769	770	771	772	773	774
Size of sweep	16 in.	14 in.	12 in.	10 in.	8 in.	6 in.
Weight, per dozen (with pasteboard boxes)	57 lbs.	53¼ lbs.	48 lbs.	45 lbs.	42 lbs.	39 lbs.
Price, per dozen	**$40.50**	**$36.50**	**$34.50**	**$32.50**	**$31.00**	**$31.00**

Packed $\frac{1}{6}$ dozen in a pasteboard box and 3 dozen in a case.

MASTER RATCHET BRACES

Nos. 830 to 833 and 830A to 833A



POLISHED AND NICKELED steel; fancy tropical wood.

BALL-BEARING head.

NON-SPLITTING ADJUSTABLE BALL-BEARING, always **FREE ACTING** sweep handle. The ball-bearing feature is of much importance in operation of the tool.

Covered, **DUST-PROTECTED** ratchet parts.

Patent cup washer (F) and screw (E) to hold chuck to sweep **WITHOUT WORKING LOOSE.**

UNBREAKABLE jaw socket made from bar steel.

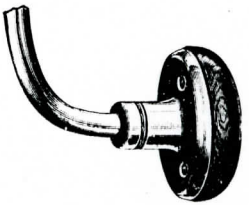
Chuck shell strengthened at the lip and of convenient shape to fit the hand.

FORGED STEEL JAWS, holding positively and securely and centering with reasonable accuracy **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, No. 1 Morse **TAPER,** and all sizes of **BIT STOCK** and **EXPANSION** bit shanks.

Conscientious and thorough workmanship in every detail.

Nos	830	831	832	833
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	48¾ lbs.	43½ lbs.	40½ lbs.	37½ lbs.
Price, per dozen	**$38.00**	**$36.00**	**$34.00**	**$32.50**

Packed $\frac{1}{6}$ dozen in a pasteboard box and 3 dozen in a case.



WITH STEEL CLAD HEADS

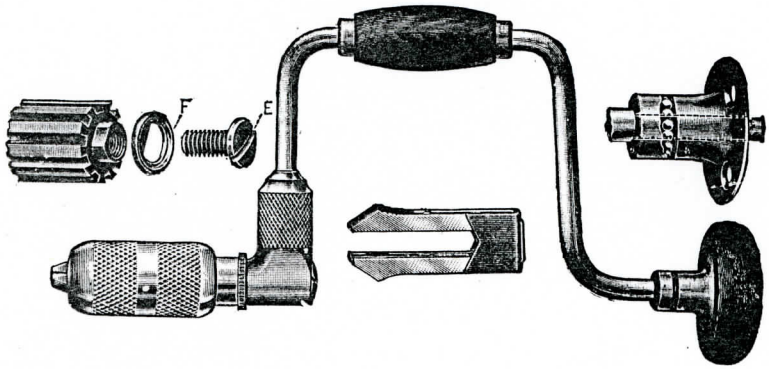
Nos	830A	831A	832A	833A
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	50¾ lbs.	45½ lbs.	42½ lbs.	39½ lbs.
Price, per dozen	**$40.00**	**$38.00**	**$36.00**	**$34.50**

Packed $\frac{1}{6}$ dozen in a pasteboard box and 3 dozen in a case.

NEW TOOL

MASTER RATCHET BRACES

Nos. 8130 to 8133 and 8130A to 8133A



POLISHED AND NICKELED steel; fancy tropical wood.

BALL-BEARING head.

NON-SPLITTING, always FREE ACTING sweep handle with INSERTED BRASS RINGS.

Covered, DUST-PROTECTED ratchet parts.

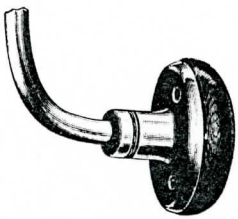
UNBREAKABLE jaw socket made from bar steel.

Chuck shell strengthened at the lip and of convenient shape to fit the hand.

FORGED STEEL JAWS, holding positively and securely, and centering with reasonable accuracy, ROUND shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, No. 1 Morse TAPER, and all sizes of BIT STOCK and EXPANSION bit shanks.

Nos	8130	8131	8132	8133
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	49½ lbs.	43½ lbs.	41¼ lbs.	37¼ lbs.
Price, per dozen	$34.00	$32.00	$30.00	$28.50

Packed $\frac{1}{6}$ dozen in a pasteboard box and 3 dozen in a case.



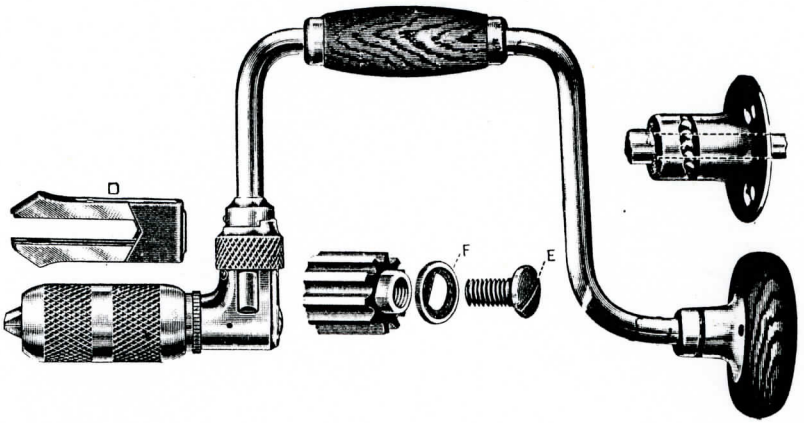
WITH STEEL CLAD HEADS

Nos	8130A	8131A	8132A	8133A
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	51½ lbs.	45½ lbs.	43¼ lbs.	39¼ lbs.
Price, per dozen	$36.00	$34.00	$32.00	$30.50

Packed $\frac{1}{6}$ dozen in a pasteboard box and 3 dozen in a case.

HOLDALL RATCHET BRACES

Nos. 729 to 734 and 729A to 734A



POLISHED AND NICKELED steel; fancy tropical wood.

BALL-BEARING head.

NON-SPLITTING, always **FREE ACTING** sweep handle with **INSERTED STEEL RINGS.**

Covered, **DUST-PROTECTED,** simply constructed ratchet parts with exposed dogs.

Patent cup washer (F) and screw (E) to hold chuck to sweep **WITHOUT WORKING LOOSE.**

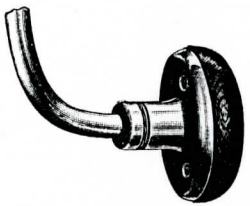
UNBREAKABLE jaw socket made from bar steel.

Chuck shell strengthened at the lip and shaped to fit the hand.

FORGED STEEL JAWS, holding positively and securely and centering with reasonable accuracy **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, No. 1 Morse **TAPER,** and all sizes of **BIT STOCK** and **EXPANSION** bit shanks.

Nos.	729	730	731	732	733	734
Size of sweep	16 in.	14 in.	12 in.	10 in.	8 in.	6 in.
Weight, per dozen (with pasteboard boxes)	55 lbs.	51 lbs.	44¼ lbs.	42 lbs.	37½ lbs.	35 lbs.
Price, per dozen	**$36.00**	**$32.00**	**$30.00**	**$28.00**	**$26.50**	**$26.50**

Packed $\frac{1}{6}$ dozen in a pasteboard box and 3 dozen in a case.



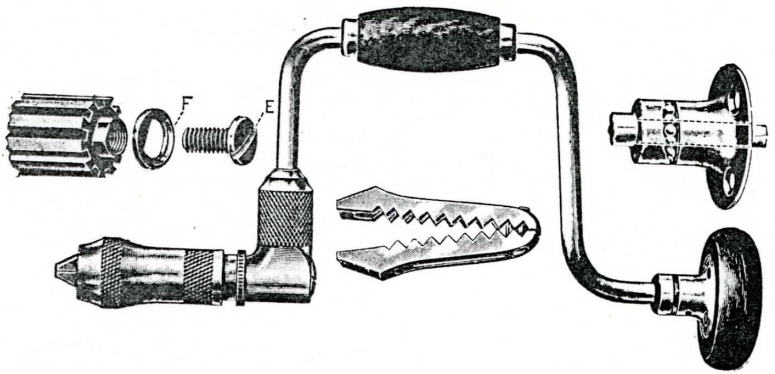
WITH STEEL CLAD HEADS

Nos.	729A	730A	731A	732A	733A	734A
Size of sweep	16 in.	14 in.	12 in.	10 in.	8 in.	6 in.
Weight, per dozen (with pasteboard boxes)	57 lbs.	53 lbs.	46¼ lbs.	44 lbs.	39½ lbs.	37 lbs.
Price, per dozen	**$38.00**	**$34.00**	**$32.00**	**$30.00**	**$28.50**	**$28.50**

Packed $\frac{1}{6}$ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

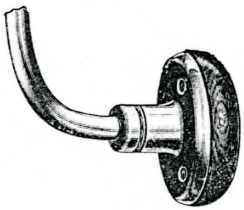
Nos. 130 to 133 and 130A to 133A



POLISHED AND NICKELED steel; rare tropical wood.
BALL-BEARING head.
NON-SPLITTING, always **FREE ACTING** sweep handle with **INSERTED STEEL RINGS.**
Covered, **DUST-PROTECTED** ratchet parts.
Patent cup washer (F) and screw (E) to hold chuck to sweep **WITHOUT WORKING LOOSE.**
FORGED STEEL ALLIGATOR JAWS holding bit stock and many sizes of round and irregular shanks.

Nos.	130	131	132	133
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	45 lbs.	39 lbs.	36¾ lbs.	32¾ lbs.
Price, per dozen	**$31.50**	**$29.50**	**$27.50**	**$26.00**

Packed ⅙ dozen in a pasteboard box and 3 dozen in a case.



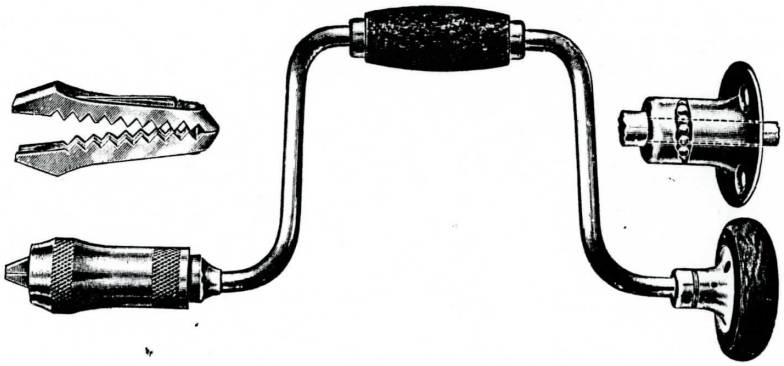
WITH STEEL CLAD HEADS

Nos.	130A	131A	132A	133A
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	47 lbs.	41 lbs.	38¾ lbs.	34¾ lbs.
Price, per dozen	**$33.50**	**$31.50**	**$29.50**	**$28.00**

Packed ⅛ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BRACES

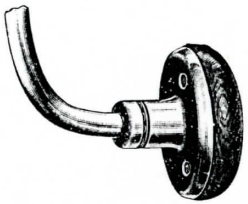
Nos. 10 to 15 and 10A to 14A



POLISHED AND NICKELED steel; rare tropical wood.
BALL-BEARING head (except on No. 15).
NON-SPLITTING, always **FREE ACTING** sweep handle with **INSERTED STEEL RINGS.**
FORGED STEEL ALLIGATOR JAWS holding bit stock and many sizes of round and irregular shanks.

Nos	10	11	12	13	14	15
Size of sweep	14 in.	12 in.	10 in.	8 in.	6 in.	4 in.
Weight, per dozen (with pasteboard boxes)	35¾ lbs.	31¼ lbs.	29¼ lbs.	24½ lbs.	22 lbs.	18½ lbs.
Price, per dozen	**$23.00**	**$21.00**	**$19.00**	**$17.50**	**$17.50**	**$17.50**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.



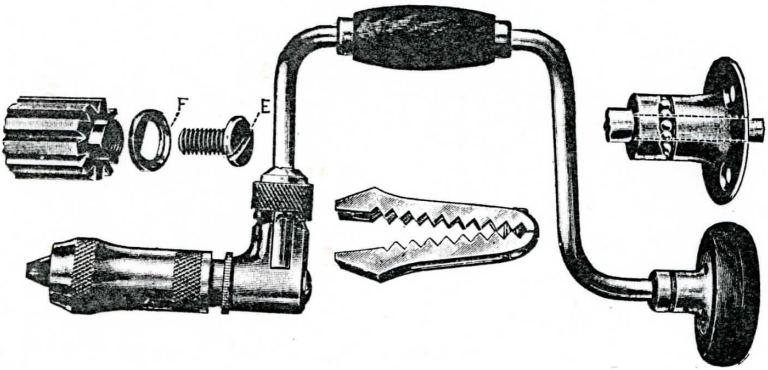
WITH STEEL CLAD HEADS

Nos	10A	11A	12A	13A	14A
Size of sweep	14 in.	12 in.	10 in.	8 in.	6 in.
Weight, per dozen (with pasteboard boxes)	37¾ lbs.	33¼ lbs.	31¼ lbs.	26½ lbs.	24 lbs.
Price, per dozen	**$25.00**	**$23.00**	**$21.00**	**$19.50**	**$19.50**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 30 to 34 and 30A to 34A



POLISHED AND NICKELED steel; rare tropical wood.

BALL-BEARING head.

NON-SPLITTING, always **FREE ACTING** sweep handle with **INSERTED STEEL RINGS.**

COVERED ratchet teeth with exposed ratchet dogs.

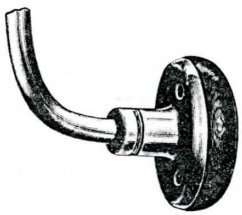
Patent cup washer (F) and screw (E) to hold chuck to sweep **WITHOUT WORKING LOOSE.**

FORGED STEEL ALLIGATOR JAWS holding bit stock and many sizes of round and irregular shanks.

For nearly two generations the standard in the bit brace world.

Nos.	30	31	32	33	34
Size of sweep	14 in.	12 in.	10 in.	8 in.	6 in.
Weight, per dozen (with pasteboard boxes)	45 lbs.	39 lbs.	36¾ lbs.	32¾ lbs.	30 lbs.
Price, per dozen	**$29.50**	**$27.50**	**$25.50**	**$24.00**	**$24.00**

Packed ⅓ dozen in a pasteboard box and 3 dozen in a case.



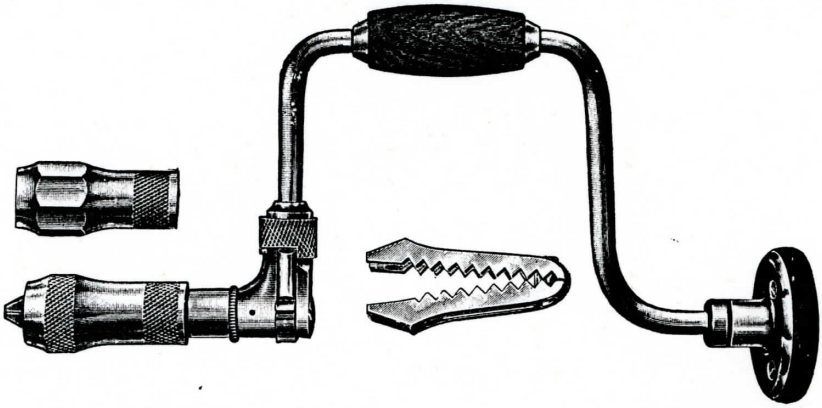
WITH STEEL CLAD HEADS

Nos.	30A	31A	32A	33A	34A
Size of sweep	14 in.	12 in.	10 in.	8 in.	6 in.
Weight, per dozen (with pasteboard boxes)	47 lbs.	41 lbs.	38¾ lbs.	34¾ lbs.	32 lbs.
Price, per dozen	**$31.50**	**$29.50**	**$27.50**	**$26.00**	**$26.00**

Packed ⅓ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 1320 to 1324



POLISHED AND NICKELED steel; ebonized heads and handles; steel sweep and jaw socket; **STEEL CLAD HEAD. FORGED STEEL** alligator jaws. **BRASS RINGS INSERTED** in sweep handle, and this handle held in place by pressed steel bolsters. Friction washer beneath the quill in head.

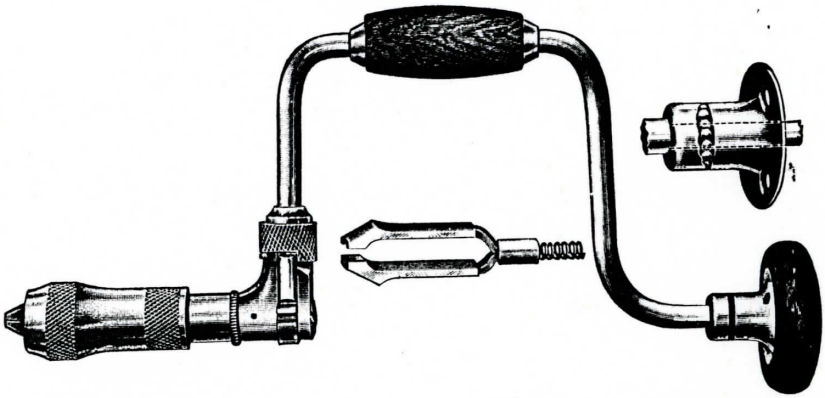
Nos	1320	1321	1322	1323	1324
Size of sweep	14 in.	12 in.	10 in.	8 in.	6 in.
Weight, per doz. (with pasteboard boxes)	42 lbs.	36 lbs.	33½ lbs.	29½ lbs.	27 lbs.
Price, per dozen	**$19.00**	**$18.00**	**$17.00**	**$16.25**	**$16.25**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.

BARBER RATCHET BRACES

Nos. 61 to 63



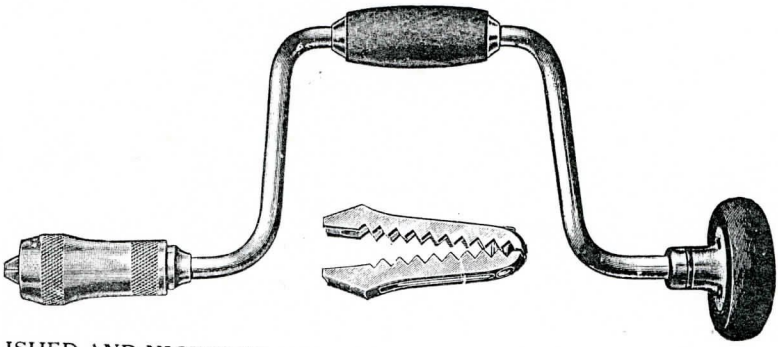
POLISHED AND NICKELED steel; rare tropical wood. **BALL-BEARING** head. Brass **RINGS INSERTED** in sweep handle. **FORGED STEEL** jaws. Open ratchet.

Nos	61	62	63
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	36 lbs.	33 lbs.	30 lbs.
Price, per dozen	**$24.50**	**$22.50**	**$21.00**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BRACES

Nos. 220 to 223



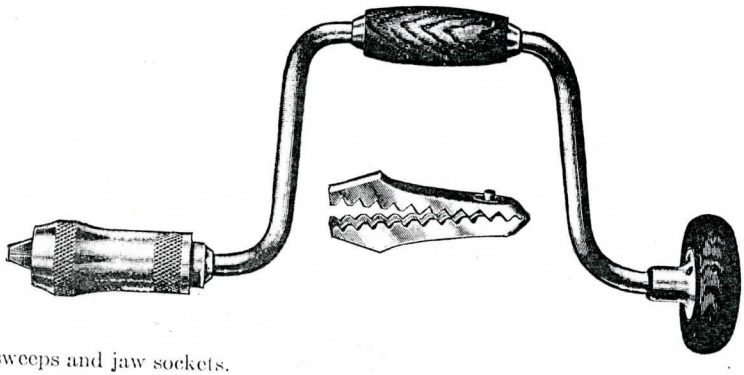
POLISHED AND NICKELED steel; stained hardwood.
Brass rings INSERTED in sweep handle.
FORGED STEEL ALLIGATOR JAWS.

Nos.	220	221	222	223
Size of sweep	14 in.	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	32 lbs.	27½ lbs.	25½ lbs.	20 lbs.
Price, per dozen	**$14.00**	**$13.00**	**$12.00**	**$11.50**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BRACES

Nos. 1401 to 1404

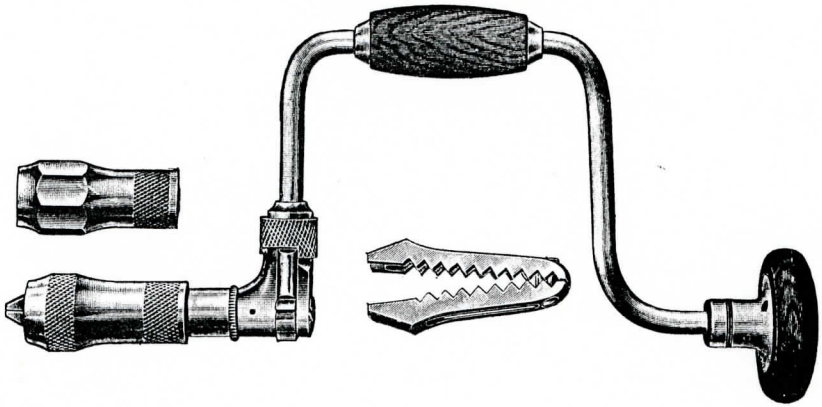


Steel sweeps and jaw sockets.
Metal parts NICKELED; EBONIZED heads and handles.
ALLIGATOR jaws of malleable iron.

Nos.	1401	1402	1403	1404
Size of sweep	12 in.	10 in.	8 in.	6 in.
Weight, per dozen (with pasteboard boxes)	27½ lbs.	25½ lbs.	20 lbs.	17½ lbs.
Price, per dozen	**$11.00**	**$10.50**	**$10.00**	**$9.75**

BARBER IMPROVED RATCHET BRACES

Nos. 320 to 324 and 320A to 324A



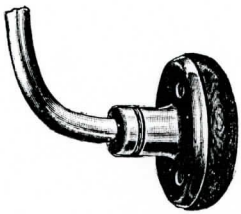
Open ratchet.

BALL-BEARING HEAD.

Otherwise the same as Braces Nos. 220 to 223 shown on page next preceding.

Nos	320	321	322	323	324
Size of sweep	14 in.	12 in.	10 in.	8 in.	6 in.
Weight, per dozen (with pasteboard boxes)	40 lbs.	34 lbs.	31½ lbs.	27½ lbs.	25 lbs.
Price, per dozen	**$19.50**	**$18.50**	**$17.50**	**$16.50**	**$15.50**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.



WITH STEEL CLAD HEADS

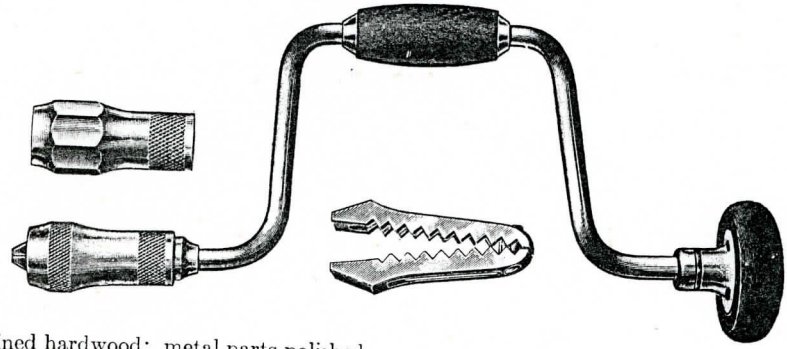
Nos	320A	321A	322A	323A	324A
Size of sweep	14 in.	12 in.	10 in.	8 in.	6 in.
Weight, per dozen (with pasteboard boxes)	42 lbs.	36 lbs.	33½ lbs.	29½ lbs.	27 lbs.
Price, per dozen	**$21.50**	**$20.50**	**$19.50**	**$18.50**	**$17.50**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.

BARBER IMPROVED BRACES

Nos. 20 to 24



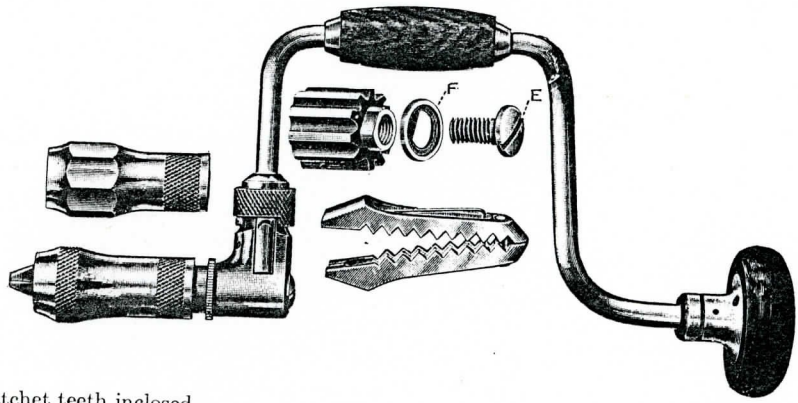
Stained hardwood; metal parts polished.
Steel sweeps and jaw sockets.
FORGED STEEL ALLIGATOR JAWS.
A popular, medium-priced Brace and a large seller.

Nos	20	21	22	23	24
Size of sweep	14 in.	12 in.	10 in.	8 in.	6 in.
Weight, per dozen (with pasteboard boxes)	32 lbs.	27½ lbs.	25½ lbs.	20 lbs.	18 lbs.
Price, per dozen	**$11.25**	**$10.50**	**$9.75**	**$9.25**	**$9.25**

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.
Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 120 to 124



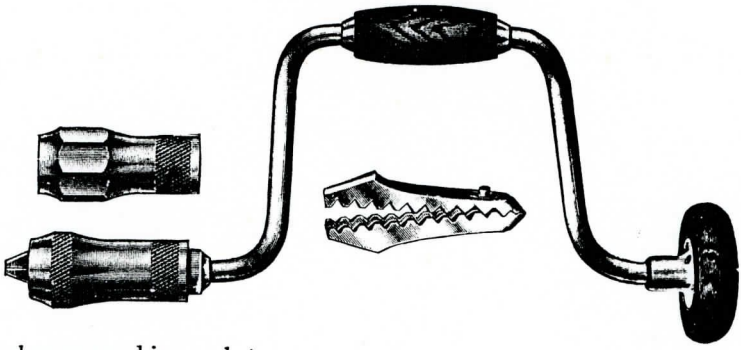
Ratchet teeth inclosed.
Otherwise the same as Braces Nos. 20 to 24 as shown above.
Exceptional value for price asked and quickly sold.

Nos	120	121	122	123	124
Size of sweep	14 in.	12 in.	10 in.	8 in.	6 in.
Weight, per dozen (with pasteboard boxes)	41 lbs.	35 lbs.	33 lbs.	29 lbs.	26½ lbs.
Price, per dozen	**$19.00**	**$18.00**	**$17.00**	**$16.25**	**$16.25**

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.
Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BRACES

Nos. 401 to 403



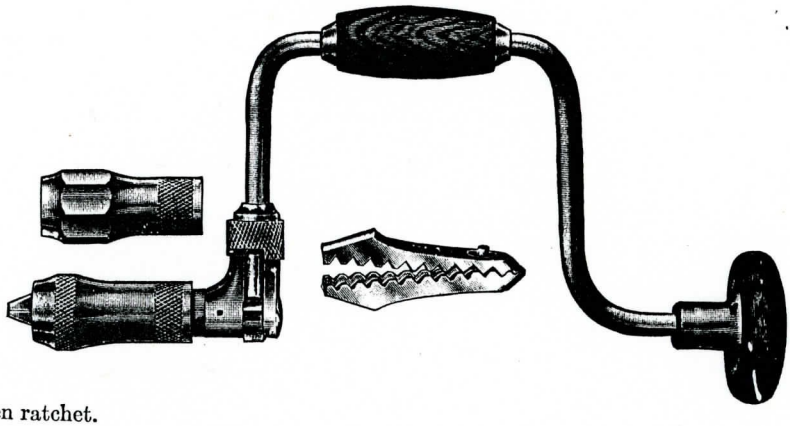
Steel sweeps and jaw sockets.
Metal parts **NICKELED;** stained hardwood heads and handles.
ALLIGATOR jaws of malleable iron.

Nos	401	402	403
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	27½ lbs.	25½ lbs.	20 lbs.
Price, per dozen	**$10.80**	**$10.20**	**$9.75**

Furnished with octagonal chuck shell at 50 cents extra per dozen.
Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 421 to 423



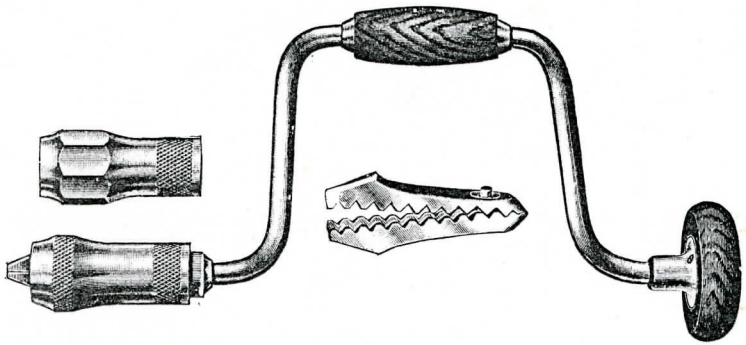
Open ratchet.
Otherwise the same as Nos. 401 to 403 shown above.

Nos	421	422	423
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	34 lbs.	31½ lbs.	27½ lbs.
Price, per dozen	**$16.50**	**$16.00**	**$15.50**

Furnished with octagonal chuck shells at 50 cents extra per dozen.
Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BRACES

Nos. 601 to 603



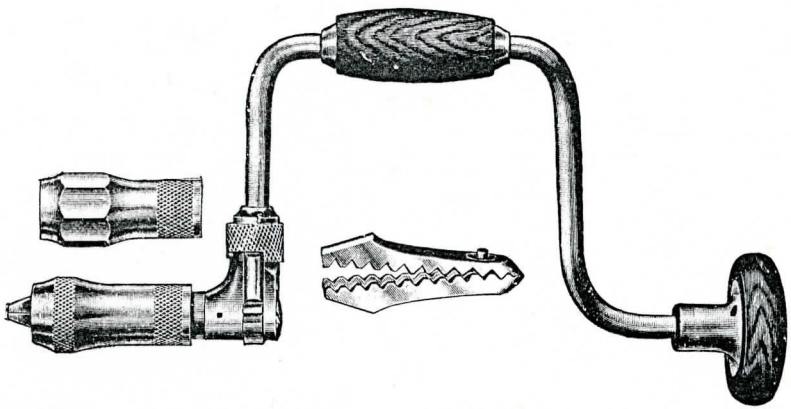
Steel sweeps and jaw sockets.
Stained hardwood; metal parts polished.
Alligator jaws of malleable iron.

Nos	601	602	603
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen	27½ lbs.	25½ lbs.	20 lbs.
Price, per dozen	**$9.25**	**$8.75**	**$8.35**

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.
Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 631 to 633



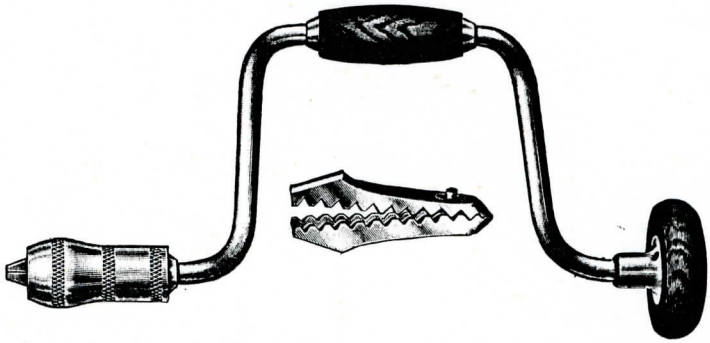
Open ratchet.
Otherwise the same as Braces Nos. 601 to 603 shown above.

Nos	631	632	633
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen	34 lbs.	31½ lbs.	27½ lbs.
Price, per dozen	**$12.50**	**$12.00**	**$11.60**

Any of the above numbers supplied with octagonal chuck shells at 50 cents extra per dozen.
Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BIT BRACES

Nos. 1641 to 1643



Rough polished and nickeled steel; tumbled, stained hardwood handles; steel sweeps and jaw sockets.

Malleable alligator jaws.

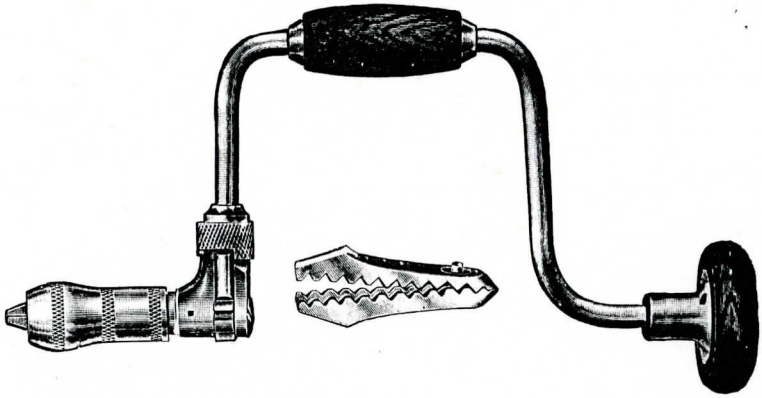
Sweep handle held in place by disc bolsters.

Nos	1641	1642	1643
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	23 lbs.	21 lbs.	15½ lbs.
Price, per dozen	**$10.00**	**$9.00**	**$8.50**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 1661 to 1663



Open ratchet, with ring shifter.

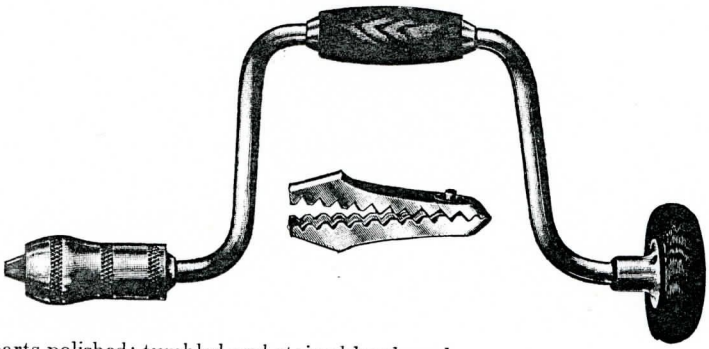
Otherwise the same as Braces Nos. 1641 to 1643 shown above.

Nos	1661	1662	1663
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	27½ lbs.	25½ lbs.	20 lbs.
Price, per dozen	**$14.00**	**$13.00**	**$12.50**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED BRACES

Nos. 141 to 143



Metal parts polished; tumbled and stained hardwood.

Steel sweeps and jaw sockets.

Malleable alligator jaws.

Nos	141	142	143
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	23 lbs.	21 lbs.	15½ lbs.
Price, per dozen	**$6.50**	**$5.90**	**$5.50**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

BARBER IMPROVED RATCHET BRACES

Nos. 161 to 163

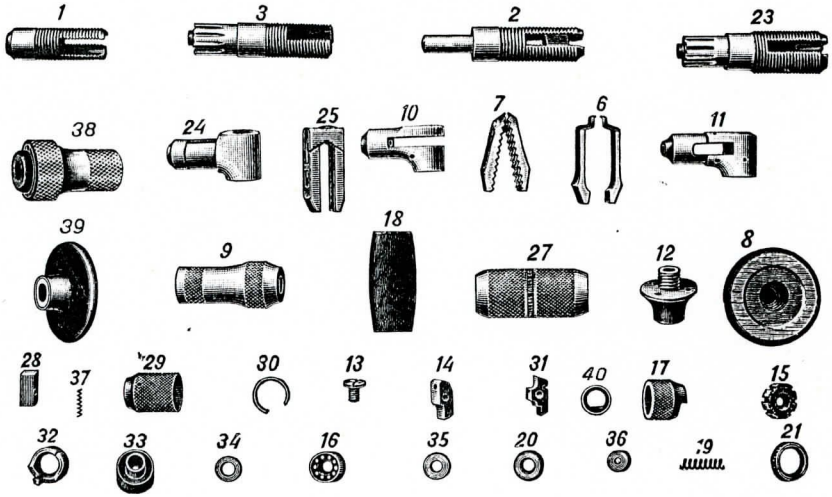
Open ratchet.

Otherwise the same as Braces Nos. 141 to 143 shown above.

Nos	161	162	163
Size of sweep	12 in.	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	27½ lbs.	25½ lbs.	20 lbs.
Price, per dozen	**$11.50**	**$10.75**	**$10.25**

Packed ½ dozen in a pasteboard box and 3 dozen in a case.

LIST OF PARTS OF BIT BRACES AND PRICES



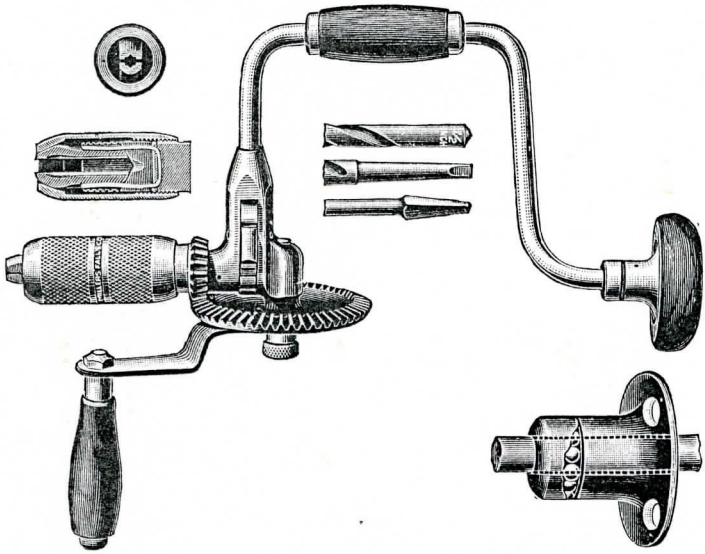
In ordering parts the number of the brace for which they are wanted should be specified as well as the number of the part.

No.		Price
1	Tail socket for Braces Nos. 10-15	$0.30
1	Tail socket for Braces Nos. 220-223 and 20-24	.25
1	Tail socket for Braces Nos. 401-403, 1401-1404, 601-603, 1641-1643 and 141-143	.20
2	Tail socket for Braces Nos. 61-63	.40
3	Tail socket for Braces Nos. 130-133 and 30-34	.40
3	Tail socket for Braces Nos. 120-123	.35
6	Jaws for Braces Nos. 61-63, per pair	.25
7	Jaws for Braces Nos. 130-133, 10-15, 30-34, 320-324, 1320-1324 and 220-223	.35
7	Jaws for Braces Nos. 20-24 and 120-124	.30
7	Jaws for Braces Nos. 1401-1404, 401-403, 421-423, 601-603, 631-633, 1641-1643, 1661-1663, 141-143 and 161-163	.20
8	Head, tropical wood	.35
8	Head, maple stained and polished	.20
8	Head, tumbled stained	.10
8	Head, ebony finish	.20
9	Shell, nickeled	.35
9	Shell, high polish	.25
9	Shell, rough polish	.20
10	Crooked socket for Braces Nos. 61-63, 320-324 and 1320-1324	.35
10	Crooked socket for Braces Nos. 421-423, 631-633, 1661-1663 and 161-163	.30
11	Crooked socket for Braces Nos. 769-774, 730-734 and 30-34	.45
11	Crooked socket for Braces Nos. 120-123	.35
12	Quill for Braces Nos. 830-833, 8130-8133, 729-734, 130-133, 10-15, 30-34, 61-63, 320-324, 220-223, 20-24 and 120-124	.25
12	Quill for Braces Nos. 1401-1404, 401-403, 421-423, 601-603, 631-633	.20
12	Quill for Braces Nos. 1641-1643, 1661-1663, 141-143 and 161-163	$0.10
13	Chuck Screw	.08
14	Ratchet pawl, per set (2)	.25
15	Ratchet wheel	.10
16	Ball cup	.10
17	Holdall and common ratchet ring	.20
18	Handle, tropical wood, ball-bearing	.40
18	Handle, tropical wood	.30
18	Handle, maple, stained and polished	.15
18	Handle, tumbled stained	.06
18	Handle, ebony finish	.15
19	Pawl spring	.02
20	Ball-bearing washer	.03
21	Socket ring washer	.03
23	Master tail socket	.40
24	Crooked socket for Braces Nos. 870-873, 8130-8133, 830-833 and 130-133	.65
25	Master jaws for Braces Nos 870-873, 769-774, 8130-8133, 830-833 and 730-734	.55
27	Master shell for Braces Nos. 8130-8133, 830-833 and 730-734	.40
28	Master ratchet pawl, per pair	.15
29	Master ratchet ring	.25
30	Master ratchet ring spring	.05
32	Master cam ring	.05
33	Master handle ball cup	.10
34	Master handle ball cup washer	.05
35	Master handle ball cup collar	.10
36	Quill washer	.02
37	Master pawl spring	.02
38	Ball-bearing shell for Nos. 870-873 and 769-774	1.00
39	Steel clad for head, polished and nickeled	.40
39	Steel clad for head, tumbled and nickeled	.25
40	Cup washer for Chuck Screw	.02

DRILL BRACE

No. 182

WITH BALL BEARINGS AND MASTER CHUCK



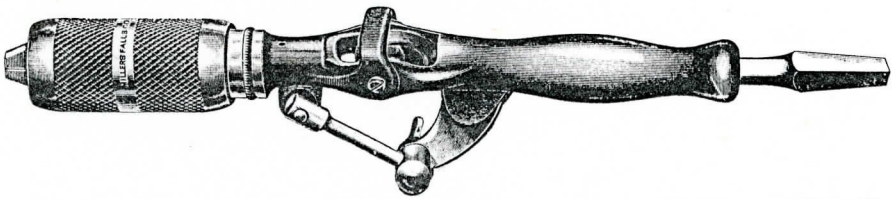
Our best grade of **BALL BEARING, RATCHET** brace with 10-inch sweep.
Drilling attachment removed or affixed in a moment's time.
Gear ratio about 3 to 1.

Weight, per dozen (with pasteboard boxes), 57 lbs.
Price, per dozen, **$42.00.**
Packed 1 in a pasteboard box and 1½ dozen in a case.

UNIVERSAL ANGULAR BIT STOCK

No. 108

WITH MASTER CHUCK



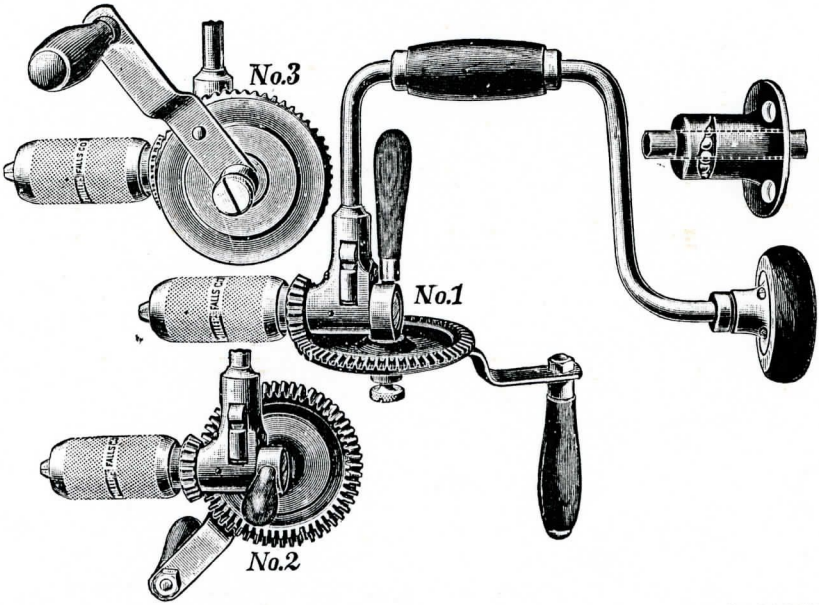
To be used with a bit brace or a breast drill either as an **EXTENSION** or **ANGULAR BORER.**

ADJUSTABLE ARC varies angle from 180° to 125°.

Length (when at 180°), 12½ inches.
Weight, per dozen (with pasteboard boxes), 26 lbs.
Price, per dozen, **$26.00.**
Packed 1 in a pasteboard box.

DRILL BRACE

No. 192

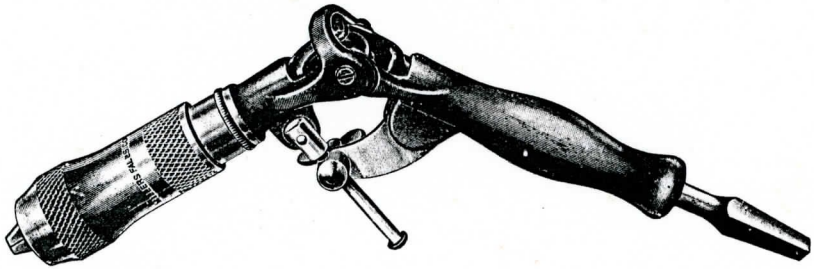


Best grade of **BALL-BEARING, RATCHET** brace with 10-inch sweep and **MASTER CHUCK**.
Improved ratchet; dogs may be thrown out of mesh **SIMULTANEOUSLY** and permit tool to be used as a breast drill.
Drilling attachment affixed or detached quickly and with ease; may be **SWIVELED INTO ANY ONE OF THREE POSITIONS**, Nos. 1, 2, and 3, as shown in illustration.
Weight, per dozen (with pasteboard boxes), 58 lbs.
Price, per dozen, **$50.00.**
Packed 1 in a pasteboard box and 1½ dozen in a case.

UNIVERSAL ANGULAR BIT STOCK

No. 109

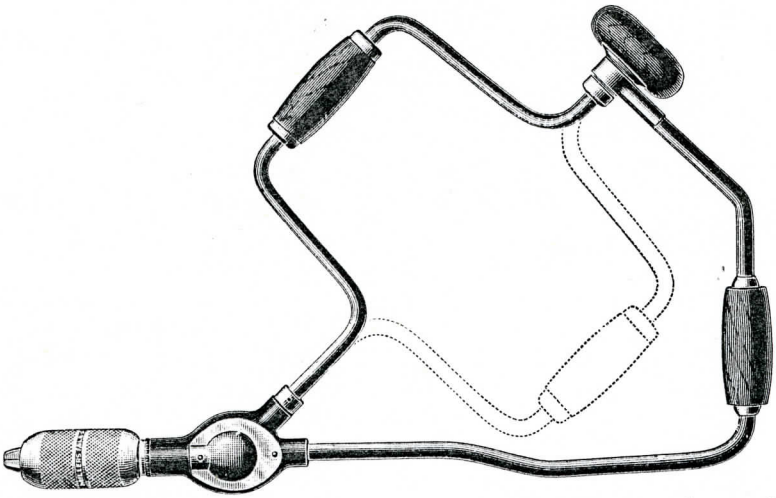
WITH BARBER IMPROVED CHUCK



Differs from No. 108 Angular Bit Stock, shown preceding, in chuck only.
Price, per dozen, **$23.00.**
Packed 1 in a pasteboard box.

CORNER BIT BRACE

WITH MASTER CHUCK



Rare tropical wood; metal parts **POLISHED AND NICKELED** except japanned hub casting.

BALL-BEARING head and **ADJUSTABLE, FREE ACTING** sweep and steadying handles.

Chuck operated by **INCLOSED GEARS, PROTECTED** from dust and dirt.

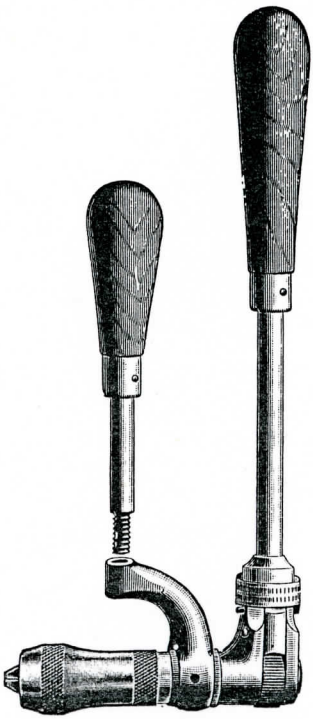
Gears **CASE HARDENED** and **HARDENED STEEL BUSHINGS** in Frame at both chuck spindle and sweep, practically **ELIMINATING WEAR AT BEARINGS.**

Nos.	502	503
Size of sweep	10 in.	8 in.
Weight, per dozen (with pasteboard boxes)	57 lbs.	55 lbs.
Length	17½ in.	17½ in.
Price, per dozen	**$48.50**	**$46.50**

Packed ⅙ dozen in a pasteboard box.

RATCHET CORNER BORER

No. 140



Stained hardwood; metal parts **POLISHED AND NICKELED.**

Steadying handle removable.

Fine ratchet teeth to admit short bite.

Barber chuck with **ALLIGATOR** jaws.

Length vertically (placed as cut), 13½ inches.

Length horizontally, 5 inches.

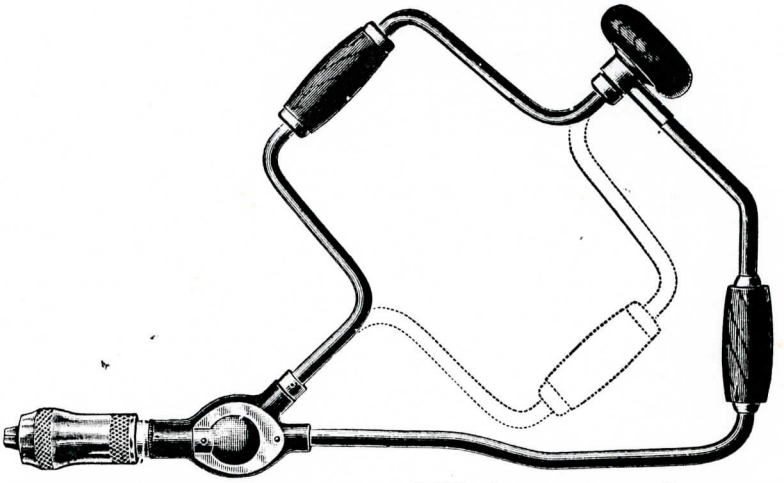
Weight, per dozen (with pasteboard boxes), 28 lbs.

Price, per dozen **$30.00.**

Packed 1 in a pasteboard box.

CORNER BIT BRACE

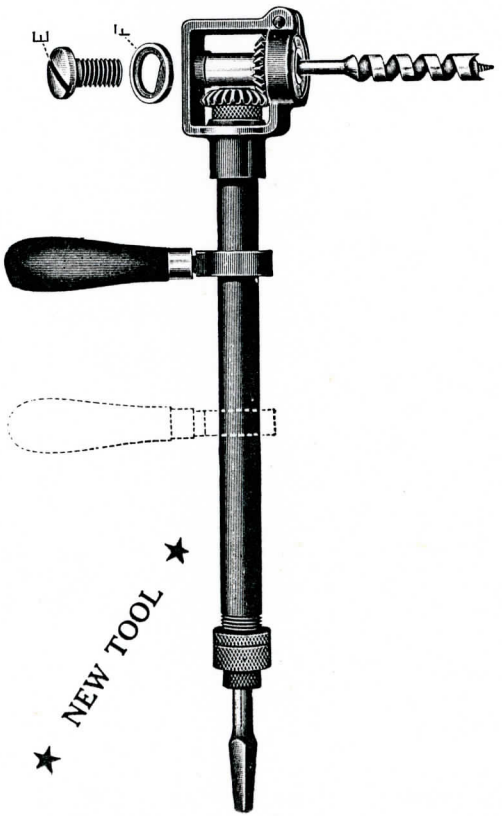
WITH BARBER IMPROVED CHUCK



The same as Corner Bit Braces Nos. 502 and 503, shown next preceding, except that chuck is of the **BARBER IMPROVED** pattern, made especially to hold bit stock shanks, also many sizes of round shanks.

Nos.	512	513
Size of sweep	10 in.	8 in.
Weight per dozen (with pasteboard boxes)	53 lbs.	51 lbs.
Price, per dozen	**$45.00**	**$43.00**

Packed $\frac{1}{6}$ dozen in a pasteboard box.



SILL BORER OR JOIST TOOL

No. 51

For use in connection with a bit brace or breast drill in boring at right angles in cramped places and indispensable for car builders, electricians, carpenters, and other wood workers.

Main frame malleable iron; working parts, including gears, bushings, etc., of **HARDENED STEEL.**

BALL BEARING and efficient take-ups for bushings in case of wear.

ADJUSTABLE STEADYING HANDLE.

Patent cup washer (F) and screw (E) to hold head in place **WITHOUT WORKING LOOSE.**

Length, $16\frac{1}{2}$ inches; depth of head, $2\frac{3}{8}$ inches.

Weight, per dozen (with pasteboard boxes), $34\frac{1}{2}$ lbs.

Price, per dozen, **$30.00.**

Packed 1 in a pasteboard box.

SILL BORER OR JOIST TOOL

No. 52

For use in cramped quarters where it is necessary to bore at a right angle and particularly recommended to electricians, car builders and wood workers in general.

Main frame malleable iron; working parts, including gears, bushings, etc., of **HARDENED STEEL.**

BALL BEARING and efficient take ups for bushings in case of wear.

STEADYING HANDLE of stained hardwood in the form of a sleeve on main frame.

Patent cup washer (F) and screw (E) to hold head in place **WITHOUT WORKING LOOSE.**

Crank to operate the gears and **PROVIDED WITH A RATCHET.** This crank enables **ONE MAN TO USE THE TOOL WITH GREATEST EASE AND CONVENIENCE.**

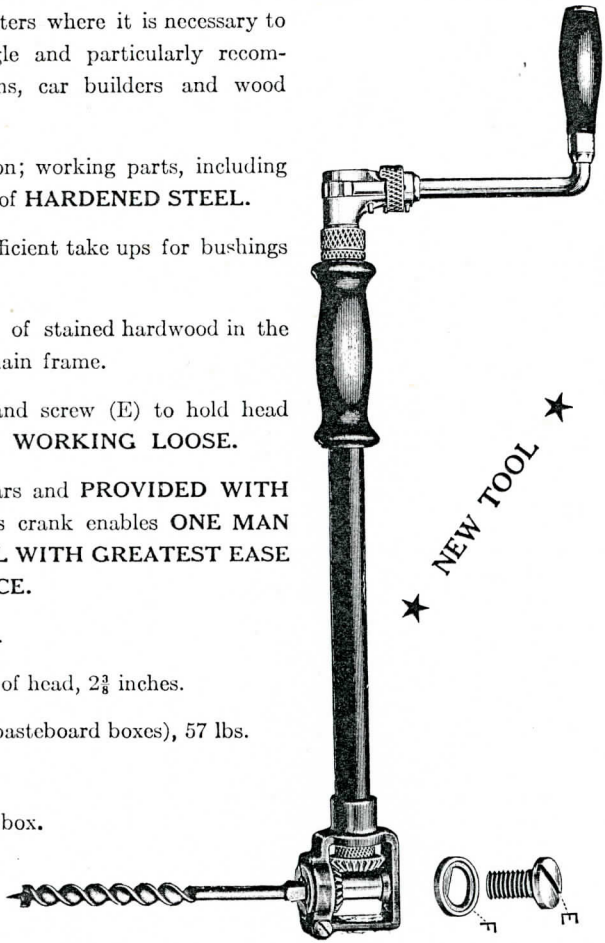
Sweep of crank, 12 inches.

Length, 23 inches; depth of head, $2\frac{3}{8}$ inches.

Weight, per dozen (with pasteboard boxes), 57 lbs.

Price, per dozen, **$40.00.**

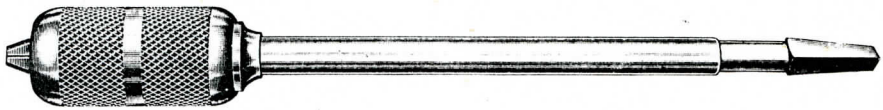
Packed 1 in a pasteboard box.



EXTENSION BIT HOLDER

No. 1

WITH MASTER CHUCK



To be used in connection with a bit brace or breast drill.
NICKELED.
Bit shanks **TAPERED EXACTLY** to gauge.
MASTER chuck holding **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, **BIT STOCK, EXPANSION** and No. 1 **MORSE TAPER** shanks.

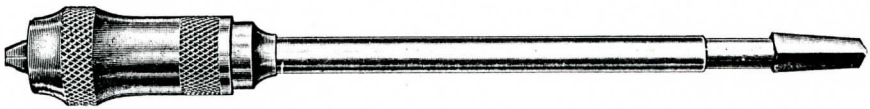
Length	12 in.	15 in.	18 in.	21 in.	24 in.
Weight, per dozen	18 lbs.	20 lbs.	23 lbs.	25 lbs.	27 lbs.
Price, per dozen	**$12.60**	**$12.80**	**$13.00**	**$13.20**	**$13.40**

Packed 1 in a pasteboard box.

EXTENSION BIT HOLDER

No. 2

WITH BARBER CHUCK



With exception of Barber chuck, designed especially for bit stock shanks, the same as No. 1 Extension Bit Holder, shown next preceding.

Length	12 in.	15 in.	18 in.	21 in.	24 in.
Weight, per dozen	14 lbs.	16 lbs.	19 lbs.	21 lbs.	23 lbs.
Price, per dozen	**$11.60**	**$11.80**	**$12.00**	**$12.20**	**$12.40**

Packed 1 in a pasteboard box.

EXTENSION BIT HOLDER

No. 302

WITH BARBER CHUCK

Polished finish.

Bit shanks **TAPERED EXACTLY** to gauge. **BARBER** chuck designed especially for bit stock shanks and with malleable iron jaws of the alligator pattern.

Length	12 in.	15 in.	18 in.	21 in.	24 in.
Weight, per dozen	14 lbs.	16 lbs.	19 lbs.	21 lbs.	23 lbs.
Price, per dozen	**$6.80**	**$7.00**	**$7.20**	**$7.40**	**$7.60**

Packed 1 in a pasteboard box.

EXTENSION BIT HOLDER

No. 3

Polished and **NICKEL PLATED** steel.

Chuck, a trifle **LESS THAN $\frac{5}{8}$ INCH IN DIAMETER, FOLLOWS BITS OF THIS SIZE AND LARGER INTO THEIR BORES.**

Clamps bit stock shanks rigidly between inner socket and lip of outer sleeve.

Bits inserted and extracted at will, easily and quickly.

Length	12 in.	15 in.	18 in.	21 in.	24 in.	30 in.
Weight, per dozen	6 lbs.	7½ lbs.	9 lbs.	10½ lbs.	12 lbs.	15 lbs.
Price, per dozen	**$14.60**	**$14.80**	**$15.00**	**$15.20**	**$15.40**	**$15.80**

Packed 1 in a pasteboard box.

EXTENSION BIT HOLDER

No. 4

Follows into their bores bits $\frac{3}{4}$ inch in diameter and larger.

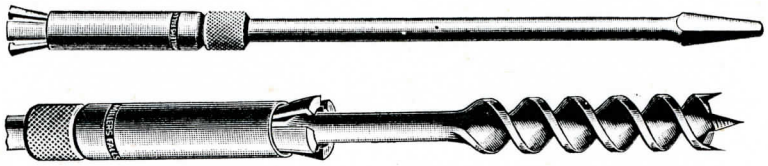
Except for being heavier, is of same general pattern as No. 3 Extension Bit Holder shown next preceding.

Length	15 in.	18 in.	24 in.
Weight, per dozen	10 lbs.	12½ lbs.	15 lbs.
Price, per dozen	**$17.30**	**$17.50**	**$18.00**

Packed 1 in a pasteboard box.

EXTENSION BIT HOLDER

No. 5



POLISHED AND NICKEL PLATED steel.
FOLLOWS BITS $\frac{5}{8}$ INCH IN DIAMETER and larger **INTO THEIR BORES.**
Four **RELIABLY STRONG, STEEL JAWS,** made in one piece, grip firmly over shoulders of bit stock shanks.
Bit inserted or released instantly when desired.
An unsurpassed tool for the purpose intended.

Length	12 in.	15 in.	18 in.	21 in.	24 in.	30 in.
Weight, per dozen	7 lbs.	8 lbs.	9 lbs.	10 lbs.	11 lbs.	13 lbs.
Price, per dozen	**$14.60**	**$14.80**	**$15.00**	**$15.20**	**$15.40**	**$15.80**

Packed 1 in a pasteboard box.

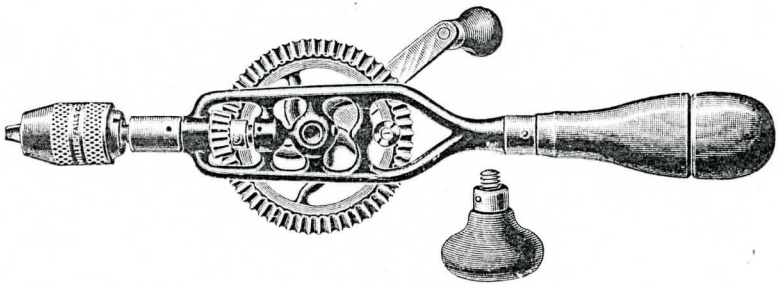
★ NEW TOOL ★

TELESCOPE EXTENSION BIT HOLDER

Nos. 6 and 7

POLISHED AND NICKEL PLATED steel.
Outer sleeve, telescoping over, and engaging at **ONE AND ONE-HALF INCH INTERVALS** upon inner spindle, combining **LIGHTNESS WITH STRENGTH.**
For description of chuck see Extension Bit Holders Nos. 3 and 5, shown previously.
Length, collapsed, $16\frac{1}{2}$ inches.
Length, extended to the extreme, 24 inches.
Weight, per dozen (with pasteboard boxes), $13\frac{1}{2}$ lbs.
No. 6, with chuck as on Extension Bit Holder No. 5, per dozen, **$24.00.**
No. 7, with chuck as on Extension Bit Holder No. 3, per dozen, **$24.00.**
Packed 1 in a pasteboard box.

HAND DRILL
No. 1



Rare tropical wood; malleable iron frame; large gear red and frame black enameled; other metal parts nickeled.

HOLLOW END HANDLE, with screw cap, containing 8 wood boring points.

Removable side, grip handle.

CUT GEARS with adjustable equalizing bearing. **PINION OF STEEL.**

BALL THRUST BEARING.

Three-jawed chuck holding, and centering accurately, round shank drills from 0 to $\frac{3}{16}$ inch in diameter.

Length, $12\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 20 lbs.

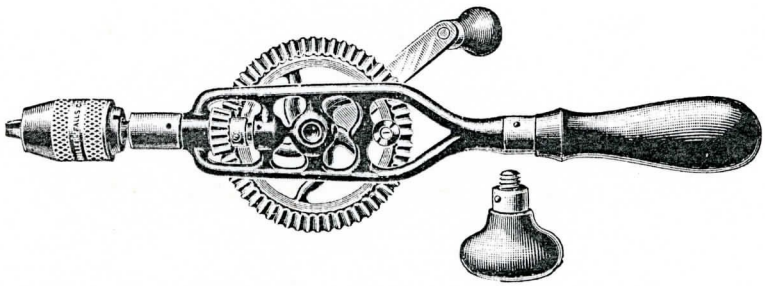
Price, per dozen, including 8 fluted drill points, **$20.00.**

Price, per dozen, of fluted drill points, **$0.50.**

Price, per set (8), of fluted drill points, **$0.35.**

Packed 1 in a pasteboard box.

HAND DRILL
No. 01



Stained hardwood; black enameled, malleable iron frame; large gear enameled red; other metal parts nickeled.

Solid end handle; removable side, grip handle.

CUT GEARS with adjustable equalizing bearing. **PINION OF STEEL.**

BALL THRUST BEARING.

Three-jawed chuck holding, and centering accurately, round shank drills from 0 to $\frac{3}{16}$ inch in diameter.

Length, $12\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 16 lbs.

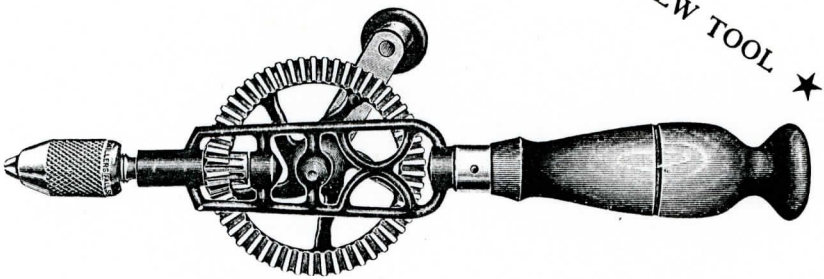
Price, per dozen, **$18.00.**

Packed 1 in a pasteboard box.

HAND DRILL

No. 104

★ NEW TOOL ★



Stained hardwood; black enameled malleable iron frame; nickeled chuck.

HOLLOW END HANDLE with screw cap of graceful and practical design and containing 8 wood boring points.

CUT GEARS with adjustable equalizing bearing. **PINION OF STEEL.**

Three-jawed chuck holding and centering accurately round shank drills from 0 to $\frac{3}{16}$ inch in diameter. Jaws are actuated by springs which are **PROTECTED FROM INJURY AND WILL NOT GET OUT OF ORDER.**

Length, $11\frac{1}{2}$ inches; weight, per dozen (with pasteboard boxes), 14 lbs.

Price, per dozen, including 8 fluted drill points, **$19.00.**

Price, per dozen, of fluted drill points, **$0.50.**

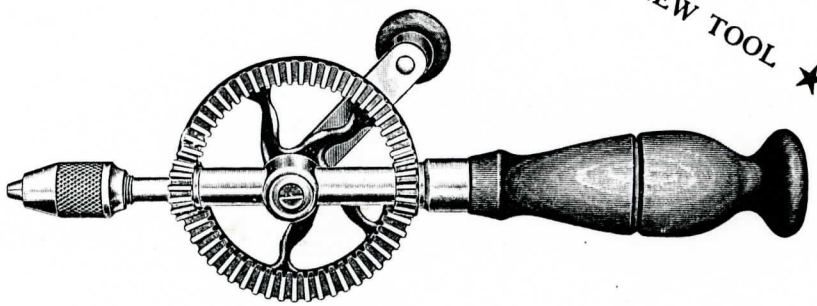
Price, per set (8), of fluted drill points, **$0.35.**

Packed 1 in a pasteboard box.

HAND DRILL

No. 304

★ NEW TOOL ★

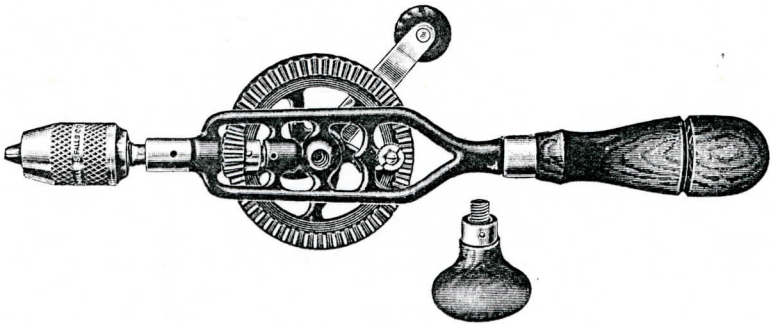


The same as No. 104, shown next preceding, except that main frame is of steel, handsomely nickeled, and idler pinion is provided to counteract outward thrust of large gear.

Price, per dozen, including 8 fluted drill points, **$20.50.**

NEW TOOL

HAND DRILL
No. 105



Rare tropical hardwood handle; malleable iron frame; large gear and frame, red enameled; other metal parts nickeled.

Hollow end handle with screw cap containing 8 wood boring points.

Removable side grip handle. Cut gears with adjustable equalizing bearing. **PINION OF STEEL.**

BALL THRUST BEARINGS.

Three-jawed Chuck of the **STAR** pattern with jaws opening evenly by means of springs that **WILL NOT GET OUT OF ORDER.** Chuck holds and centers accurately round shanks from 0 to $\frac{1}{4}$ inch in diameter.

Length, $12\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 20 lbs.

Price, per dozen, including 8 fluted drill points, **$24.00.**

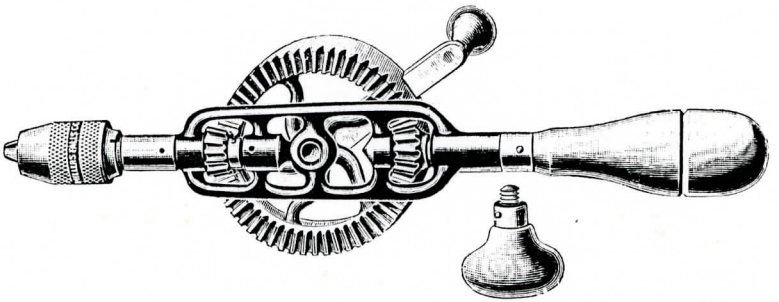
Price, per dozen, of fluted drill points, **$0.50.**

Price, per set, of 8 fluted drill points, **$0.35.**

Packed 1 in a pasteboard box.

HAND DRILL

No. 5



Rare tropical wood; malleable iron frame; large gear red and frame black enameled; other metal parts nickeled.

HOLLOW END HANDLE, with screw cap, containing 8 wood boring points, ranging in size from $\frac{1}{16}$ to $\frac{11}{64}$ inch in diameter.

Removable side, grip handle.

CUT GEARS; large gear with **WIDE RIM** to be grasped between thumb and fingers when delicate work is being done, and with idler gear to equalize bearings. **PINIONS OF STEEL.**

BALL THRUST BEARING.

Three-jawed chuck holding, and centering accurately, round shank drills from 0 to $\frac{3}{16}$ inch in diameter.

Length, $12\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 22 lbs.

Price, per dozen, including 8 fluted drill points with each drill, **$24.00.**

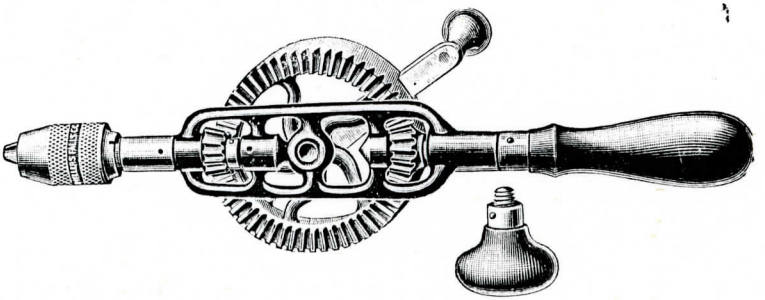
Price, per dozen, of fluted drill points, **$0.50.**

Price, per set (8), drill points, **$0.35.**

Packed 1 in a pasteboard box.

HAND DRILL

No. 05



Stained hardwood; large gear red.

Solid end handle.

In other respects the same as Hand Drill No. 5, shown next preceding.

Length, $12\frac{1}{2}$ inches.

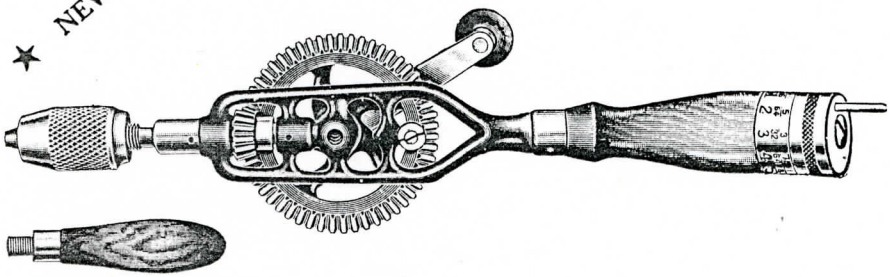
Weight, per dozen (with pasteboard boxes), 18 lbs.

Price, per dozen, **$21.00.**

Packed 1 in a pasteboard box.

HAND DRILL
No. 107

NEW TOOL



Stained hardwood handles; malleable iron frame; large gear red, and frame black enameled; other metal parts **NICKELED.**

Main handle containing 8 wood boring points, **EACH POINT IN A SEPARATE CELL** and released by a screw cap without disturbing the others. Removable side, grip handle.

CUT GEARS with adjustable equalizing bearing. **PINIONS OF STEEL.**

BALL THRUST BEARING.

Three-jawed chuck of the **STAR** pattern with jaws opening evenly by means of springs that are **PROTECTED FROM INJURY AND WILL NOT GET OUT OF ORDER.** Chuck holds and centers accurately round shanks from 0 to $\frac{1}{4}$ inch in diameter.

Length, $12\frac{3}{4}$ inches. Weight, per dozen (with pasteboard boxes), 20 lbs.

Price, per dozen, including 8 fluted drill points, **$33.00.**

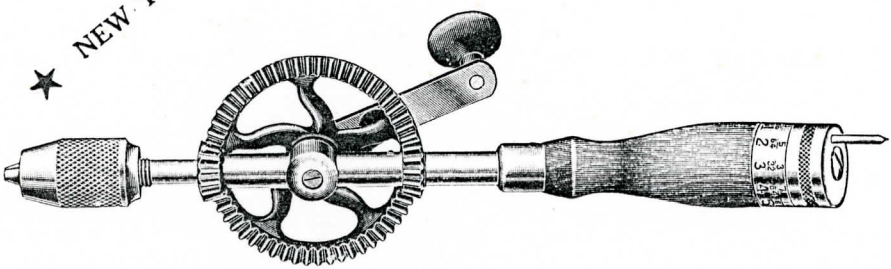
Price, per dozen, of fluted drill points, **$0.50.**

Price, per set, of 8 fluted drill points, **$0.35.**

Packed 1 in a pasteboard box.

HAND DRILL
No. 307

NEW TOOL



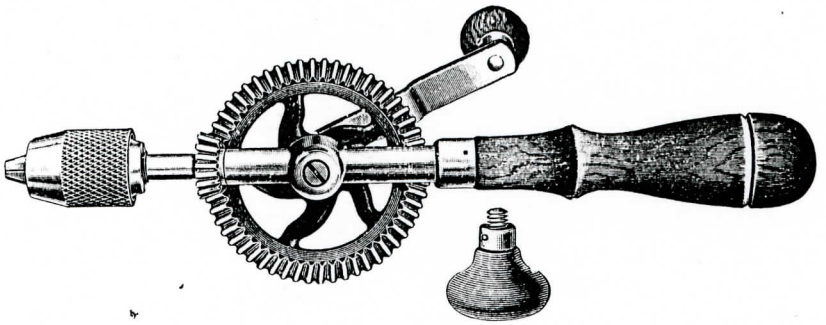
The same as Drill No. 107, shown next preceding, except that main frame is of steel handsomely nickeled and idler pinion is provided to counteract the outward thrust of large gear, and side handle is omitted.

Price, per dozen, including 8 fluted drill points, **$30.00.**

Packed 1 in a pasteboard box.

HAND DRILL

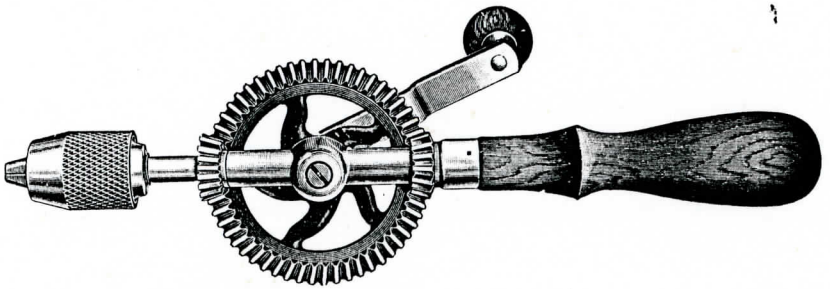
No. 303



HOLLOW MAIN HANDLE of stained hardwood; **SOLID STEEL FRAME.**
Large gear red; all other metal parts **NICKELED.**
CUT GEARS. PINION OF STEEL.
Detachable side handle.
Three-jawed chuck holding round shanks from 0 to $\frac{3}{16}$ inch in diameter.
Length, $11\frac{1}{4}$ inches.
Weight, per dozen (with pasteboard boxes), 18 lbs.
Price, per dozen, **$17.00.**
Packed 1 in a pasteboard box.

HAND DRILL

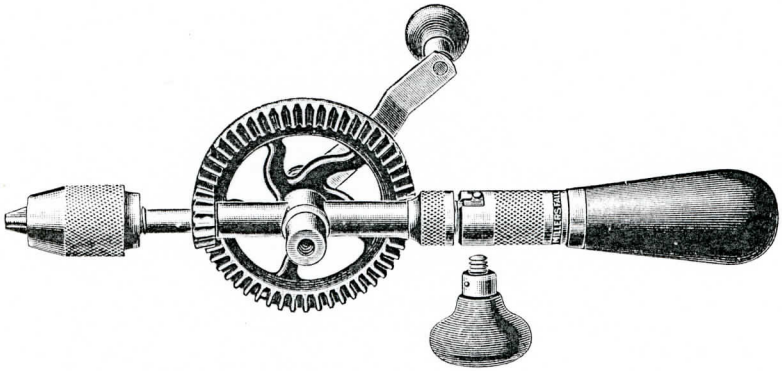
No. 313



Except that it has idler gear to equalize bearings, the same as Hand Drill No. 303, shown next preceding.
Length, $11\frac{1}{4}$ inches.
Weight, per dozen (with pasteboard boxes), 18 lbs.
Price, per dozen, **$18.00.**
Packed 1 in a pasteboard box.

HAND DRILL

No. 3



Stained hardwood; **SOLID STEEL FRAME.**

Large gear enameled red; all other metal parts **NICKELED.**

Hollow end handle quickly detached and with receptacle large enough to hold any twist drills within the capacity of the tool.

Detachable side, grip handle.

CUT GEARS. PINION OF STEEL.

Three-jawed chuck holding round shanks from 0 to $\frac{3}{16}$ inch in diameter.

Length, 11 inches.

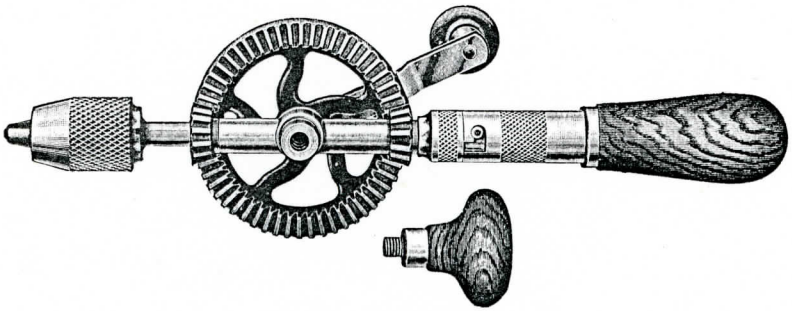
Weight, per dozen (with pasteboard boxes), 18 lbs.

Price, per dozen, **$20.00.**

Packed 1 in a pasteboard box.

HAND DRILL

No. 03



Except that idler pinion is provided to counteract the outward thrust of large gear, the same as Hand Drill No. 3, shown next preceding.

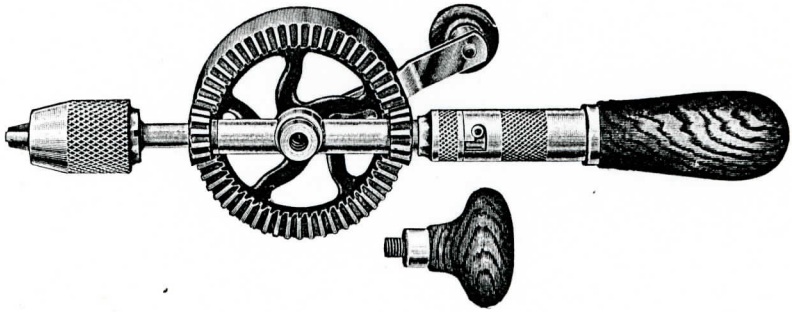
Length, 11 inches.

Weight, per dozen (with pasteboard boxes), 18 lbs.

Price, per dozen, **$21.50.**

Packed 1 in a pasteboard box.

HAND DRILL
No. 3A

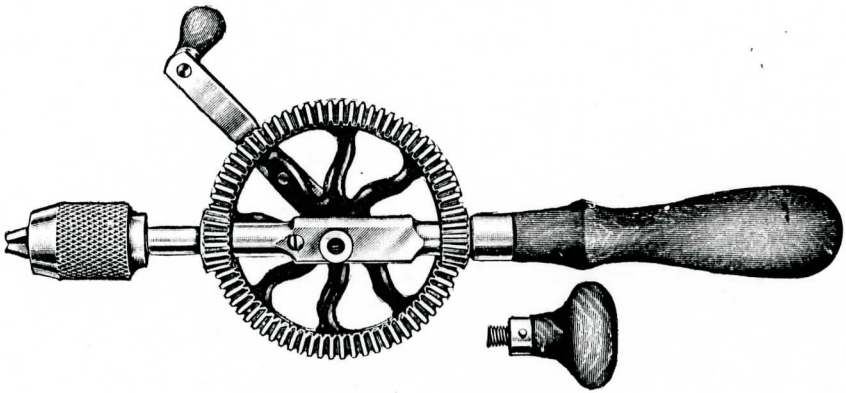


The same as Drill No. 03 shown next preceding, except that the large gear has a wide rim to be grasped between thumb and finger when delicate work is being done.

Price, per dozen, **$22.00.**

Packed 1 in a pasteboard box.

HAND DRILL
No. 7



Stained hardwood handles; **SOLID STEEL FRAME;** metal parts **POLISHED,** excepting red enameled large gear.

CUT GEARS; diameter of large gear, 4 inches.

Three-jawed chuck holding round shanks from 0 to $\frac{17}{64}$ inch in diameter.

Length, $12\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 23 lbs.

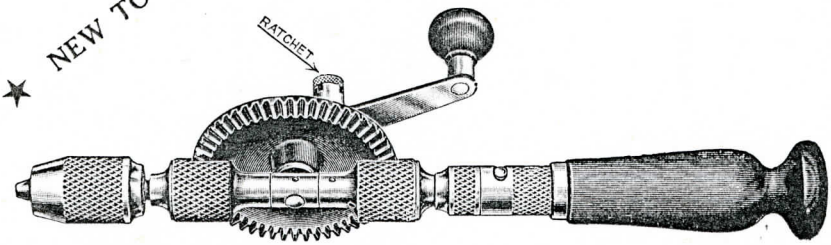
Price, per dozen, **$24.00.**

Packed 1 in a pasteboard box.

HAND DRILL

No. 306

★ NEW TOOL ★

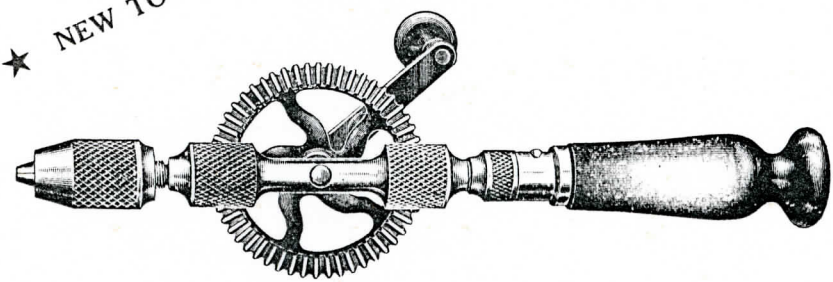


Choice hardwood stained; **SOLID STEEL FRAME.**
Large gear painted red; other metal parts **NICKELED.**
Detachable hollow end handle of graceful design and with receptacle to hold twist drills up to the capacity of the chuck.
CUT GEARS with a small **STEEL** working gear and a **STEEL** idler gear to equalize bearings, both gears being almost totally inclosed as **PROTECTION AGAINST DUST AND DIRT.**
BALL THRUST BEARINGS.
Provided with **SIMPLE AND EFFECTIVE RATCHET** operated by raising and turning to the right or left the cap to a small boss on the crank handle. This is a convenience in cramped places or when doing delicate work.
Chuck of **STAR** pattern with three jaws opening with springs, which are protected and **DO NOT GET OUT OF ORDER,** and closing evenly on, and centering accurately, round shanks from 0 to $\frac{1}{4}$ inch in diameter.
Length, without handle, 8 inches.
Length, with handle, 12½ inches.
Weight, per dozen (with pasteboard boxes), 19½ lbs.
Price, per dozen, **$38.00.**
Packed 1 in a pasteboard box.

HAND DRILL

No. 316

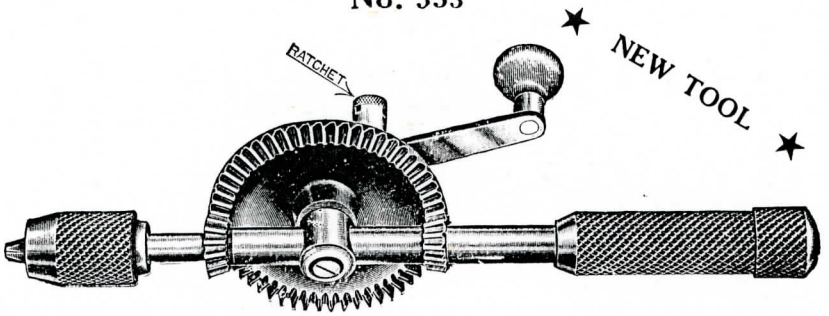
★ NEW TOOL ★



The same as Drill No. 306, shown next preceding, except that it does not have the ratchet attachment, and large gear is of open construction.
Length, without handle, 8 inches.
Length, with handle, 12½ inches.
Weight, per dozen (with pasteboard boxes), 18 lbs.
Price, per dozen, **$30.00.**
Packed 1 in a pasteboard box.

HAND DRILL

No. 353



ALL METAL, except **ENAMELED** hardwood crank handle; **SOLID STEEL FRAME, NICKELED;** large gear enameled black, with red stripe.

Hollow end handle, handsomely knurled, with removable screw cap.

Provided with **SIMPLE AND EFFECTIVE RATCHET,** operated by raising and turning to the right or left the cap to a small boss on the crank handle. This is a convenience in cramped places or when doing delicate work.

CUT GEARS; pinions of **STEEL.**

Three-jawed chuck holding round shanks from 0 to $\frac{3}{16}$ inch in diameter.

Length, 11 inches.

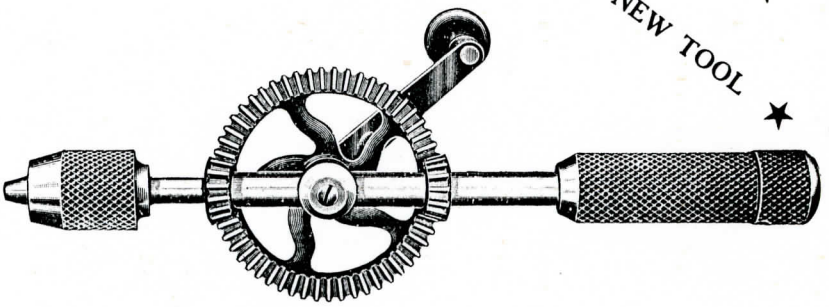
Weight, per dozen (with pasteboard boxes), 21 lbs.

Price, per dozen, **$29.00.**

Packed 1 in a pasteboard box.

HAND DRILL

No. 343



The same as drill No. 353 shown next preceding, except it is not provided with a ratchet, and large gear is of open construction.

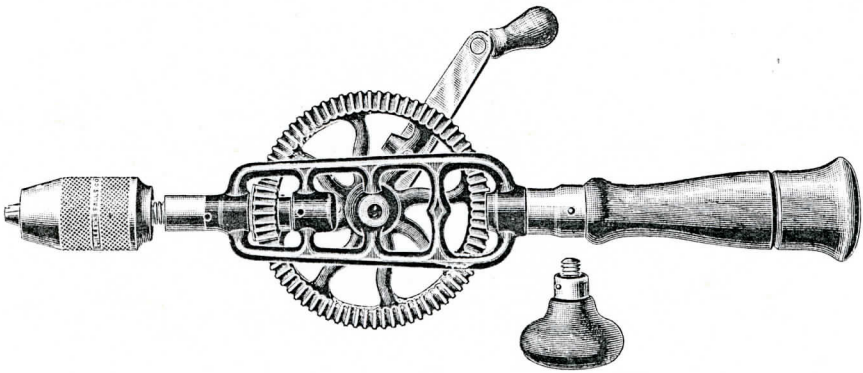
Length, 11 inches.

Weight, per dozen (with pasteboard boxes), 19½ lbs.

Price, per dozen, **$21.00.**

Packed 1 in a pasteboard box.

HAND DRILL
No. 2



Rare tropical wood; malleable iron, black enameled frame; large gear painted red; other metal parts nickeled.

HOLLOW END HANDLE, with screw cap, shaped so tool may be used as a breast drill, and containing 8 wood boring points.

Removable side, grip handle.

CUT GEARS with adjustable friction roll to equalize bearings. **PINION OF STEEL.**

BALL THRUST BEARING.

Chuck of Star pattern with 3 jaws opening with springs, which are **PROTECTED FROM INJURY AND WILL NOT GET OUT OF ORDER,** and **CLOSING EVENLY** on, and **CENTERING ACCURATELY,** round shanks from 0 to $\frac{3}{8}$ inch in diameter.

Length, $14\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 29 lbs.

Price, per dozen, including 8 fluted drill points, **$35.00.**

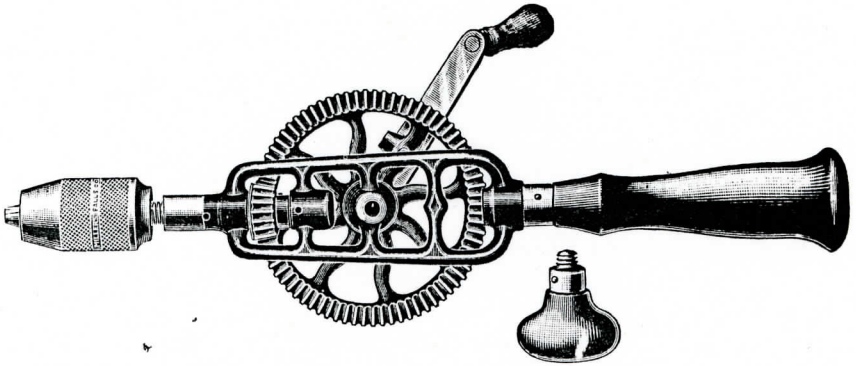
Price, per dozen, of fluted drill points, **$0.50.**

Price, per set, of 8 fluted drill points, **$0.35.**

Packed 1 in a pasteboard box.

HAND DRILL

No. 2B



Stained hardwood; malleable iron, black enameled frame; large gear enameled French gray with red stripe; other metal parts nickeled.

Solid end handle shaped so tool may be used as a breast drill.

Removable side, grip handle.

CUT GEARS with adjustable friction roll to equalize bearings. **PINION OF STEEL. BALL THRUST BEARING.**

Chuck of Star pattern with 3 jaws opening with springs and **CLOSING EVENLY** on, and **CENTERING ACCURATELY**, round shanks from 0 to $\frac{3}{8}$ inch in diameter.

Length, $14\frac{1}{2}$ inches.

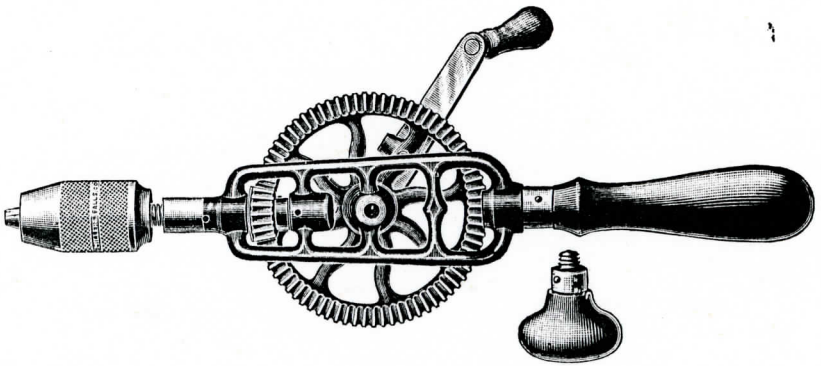
Weight, per dozen (with pasteboard boxes), 28 lbs.

Price, per dozen, **$31.00.**

Packed 1 in a pasteboard box.

HAND DRILL

No. 02



The shape of end handle excepted, the same as Hand Drill No. 2B shown next preceding.

Length, 14 inches.

Weight, per dozen (with pasteboard boxes), 27 lbs.

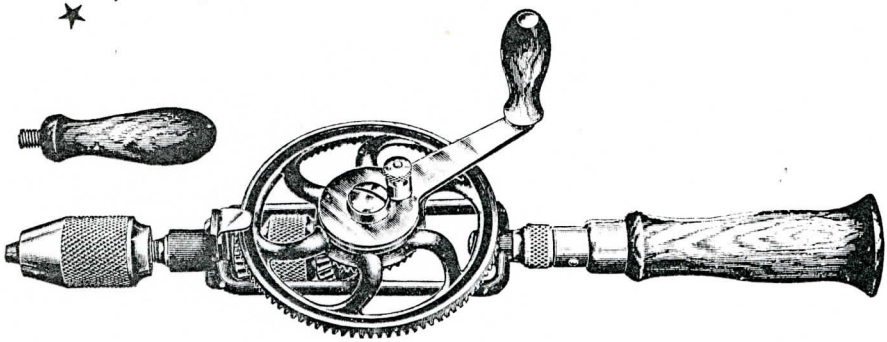
Price, per dozen, **$31.00.**

Packed 1 in a pasteboard box.

HAND DRILL

No. 198

★ NEW TOOL ★



Choice stained hardwood handles; malleable iron frame; large gear painted red; other parts nickeled.

HOLLOW END HANDLE, with receptacle for **HOLDING TWIST DRILLS UP TO THE LARGEST SIZE WITHIN THE CAPACITY OF THE CHUCK,** detached by loosening a knurled check nut and pressing on a plunger, and shaped so tool may be used as a breast drill.

Removable side, grip handle.

INSTANTLY CHANGEABLE SPEED, $1\frac{1}{2}$ to 1 and 4 to 1, operated by shifting a knurled ring.

Provided with **SIMPLE AND EFFECTIVE RATCHET,** operated by raising and turning to the right or left the cap to a small boss on the crank handle. This is a convenience in cramped places or in doing delicate work.

Pinions and shifting device of steel and **INCLOSED FOR PROTECTION.**

CUT GEARS with adjustable friction roll to equalize bearings.

BALL THRUST BEARING.

Chuck of **STAR** pattern with three jaws opening with **SPRINGS THAT ARE PROTECTED AND DO NOT GET OUT OF ORDER** and **CLOSING EVENLY** on, and **CENTERING ACCURATELY,** round shanks from 0 to $\frac{3}{8}$ inch in diameter.

Length, without handle, 10 inches; with handle, $15\frac{3}{4}$ inches.

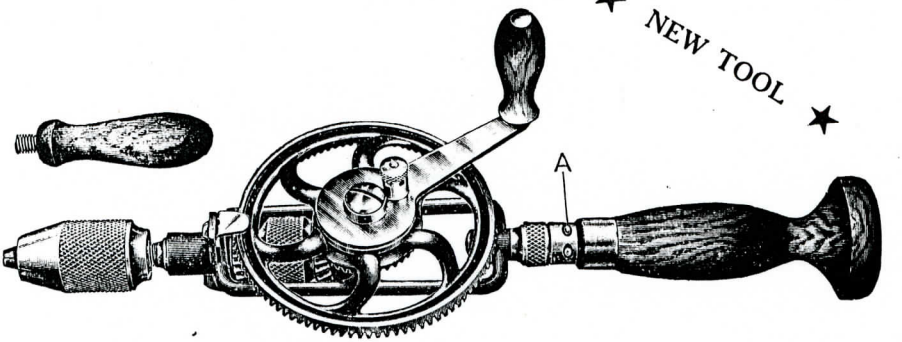
Weight, per dozen (with pasteboard boxes), 39 lbs.

Price, per dozen, **$48.00.**

Packed 1 in a pasteboard box.

HAND DRILL
No. 1980

★ NEW TOOL ★



The same as drill No. 198, shown next preceding, except for the hollow end handle, which is of shapely design with mushroom head.

Length, without handle, 10 inches; with handle 15¾ inches.

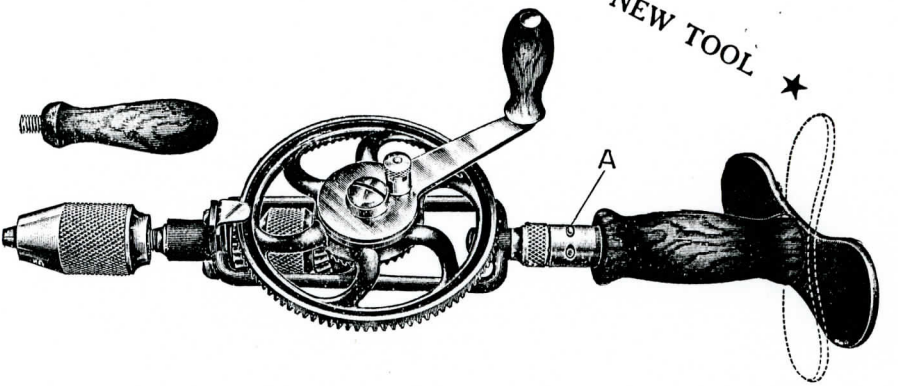
Weight, per dozen (with pasteboard boxes), 39¾ lbs.

Price, per dozen, **$48.00.**

Packed 1 in a pasteboard box.

HAND DRILL
No. 1981

★ NEW TOOL ★



With hollow end handle having receptacle for twist drills and to be used for hand grip when breast plate is in position as shown in full in illustration, or for use against the chest of the operator when breast plate occupies position as shown by dotted lines in illustration. Breast plate removable from handle when desired.

In other respects the same as hand drill No. 198, shown preceding.

Length, without handle, 10 inches; with handle 15¼ inches.

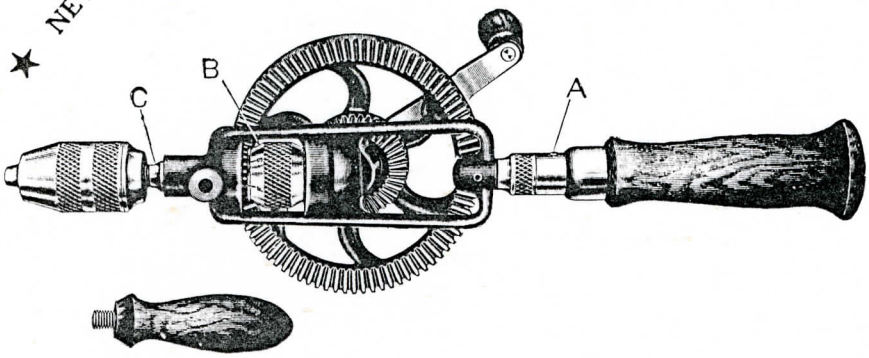
Weight, per dozen (with pasteboard boxes), 42¾ lbs.

Price, per dozen, **$48.50.**

Packed 1 in a pasteboard box.

HAND DRILL
No. 98

NEW TOOL



Choice stained hardwood handles; malleable iron frame; large gear painted red; other parts nickeled.

HOLLOW END HANDLE with receptacle for holding twist drills, detached by loosening a knurled check nut and pressing on the plunger at A shown in illustration, and shaped so tool may be used as a breast drill.

Removable side, grip handle.

INSTANTLY CHANGEABLE SPEED, $1\frac{1}{2}$ to 1 and 4 to 1, operated by shifting knurled ring B.

Pinions and shifting device of steel and **INCLOSED FOR PROTECTION.**

CUT GEARS with adjustable friction roll to equalize bearings.

BALL THRUST BEARING at point marked C in illustration.

Chuck of Star pattern with three jaws opening with springs, which are **PROTECTED FROM INJURY** and **WILL NOT GET OUT OF ORDER,** and **CLOSING EVENLY** on, and **CENTERING ACCURATELY,** round shanks from 0 to $\frac{3}{8}$ inch in diameter.

Length, without handle, 10 inches; with handle, $15\frac{1}{4}$ inches.

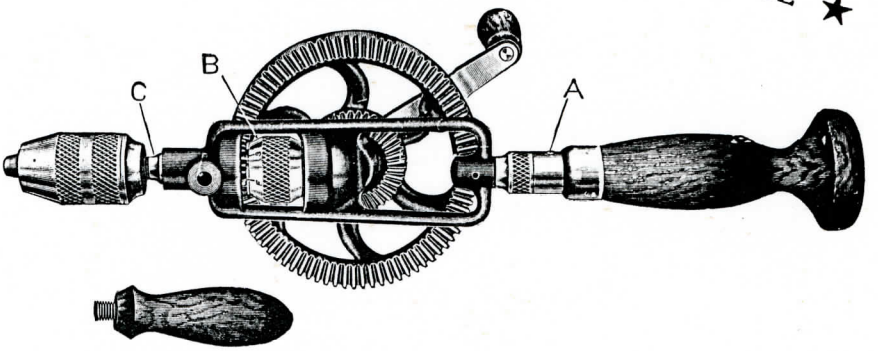
Weight, per dozen (with pasteboard boxes), $37\frac{1}{2}$ lbs.

Price, per dozen, **$40.00.**

Packed 1 in a pasteboard box.

HAND DRILL
No. 980

★ NEW TOOL ★



The same as drill No. 98, shown next preceding, except for the hollow end handle, which is of shapely design with mushroom head.

Length, without handle, 10 inches; with handle, 15¼ inches.

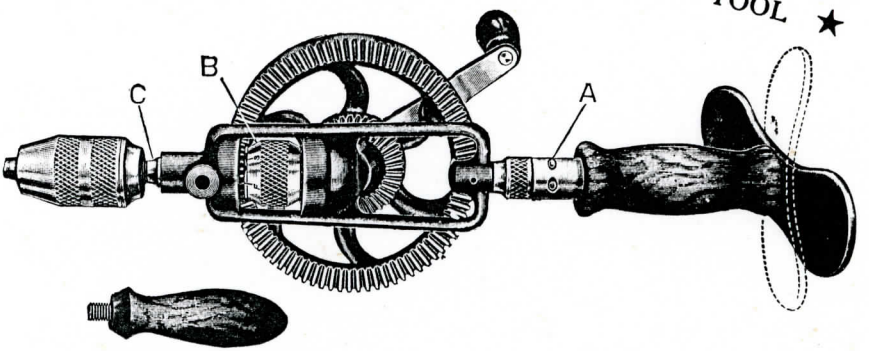
Weight, per dozen (with pasteboard boxes), 37½ lbs.

Price, per dozen, **$40.00.**

Packed 1 in a pasteboard box.

HAND AND BREAST DRILL
No. 981

★ NEW TOOL ★



With hollow end handle having receptacle for twist drills and to be used for hand grip when breast plate is in position as shown by dotted line in illustration or for use against the chest of the operator when breast plate occupies position as shown in full in illustration. Breast plate removable from handle when desired.

In other respects the same as Hand Drill No. 98, shown preceding.

Length, without handle, 10 inches; with handle, 14½ inches.

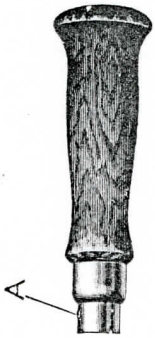
Weight, per dozen (with pasteboard boxes), 40½ lbs.

Price, per dozen, **$41.50.**

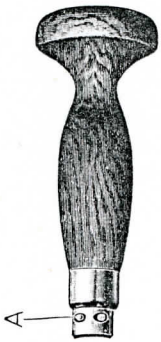
Packed 1 in a pasteboard box.

HANDLES FOR HAND DRILLS

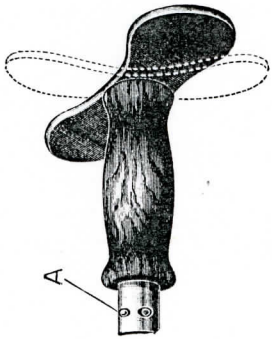
Nos. 98, 980, 981, 198, 1980 and 1981



For
Nos. 98 and 198



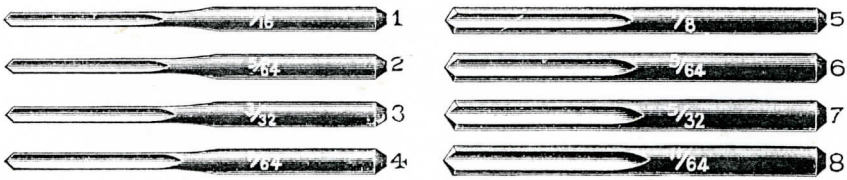
For
Nos. 980 and 1980



For
Nos. 981 and 1981

For prices, see page 71

HAND DRILL POINTS



For use in wood and soft metals only.

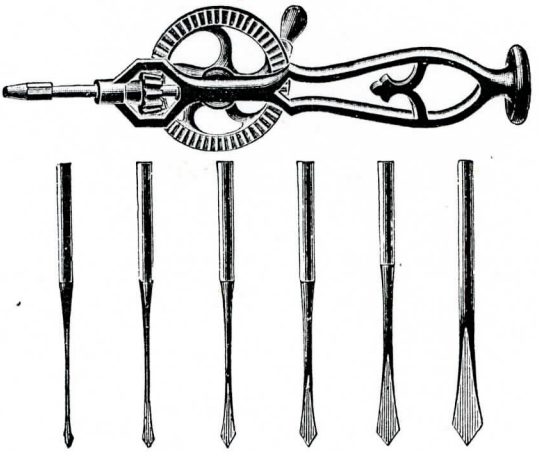
Price, per set, **$0.35.**

Price, per dozen, **$0.50.**

Packed 1 set, or 1 dozen, in a wooden box.

HAND DRILL

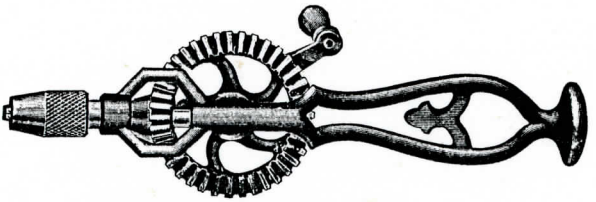
No. 4



Black enameled, cast iron frame and gears.
Steel spindle.
Chuck holding drill points as shown in illustration, which are supplied in a wooden box.
Length, 8 inches.
Weight, per dozen (with pasteboard boxes), 7½ lbs.
Price, per dozen, with 6 drill points with each drill, **$6.50.**
Price, per set, of 6 drill points, **$0.25.**
Packed 1 in a pasteboard box.

HAND DRILL

No. 4D



Designed especially for manual training use.
Selected hardwood handle; cast iron frame and large gear enameled black.
Steel spindle.
NICKELED two-jawed chuck holding straight shank drills from $\frac{1}{64}$ to $\frac{1}{8}$ inch in diameter.
Length, 8 inches.
Weight, per dozen (with pasteboard boxes), 8 lbs.
Price, per dozen, **$10.50.**
Packed 1 in a pasteboard box.

BREAST DRILL

No. 87

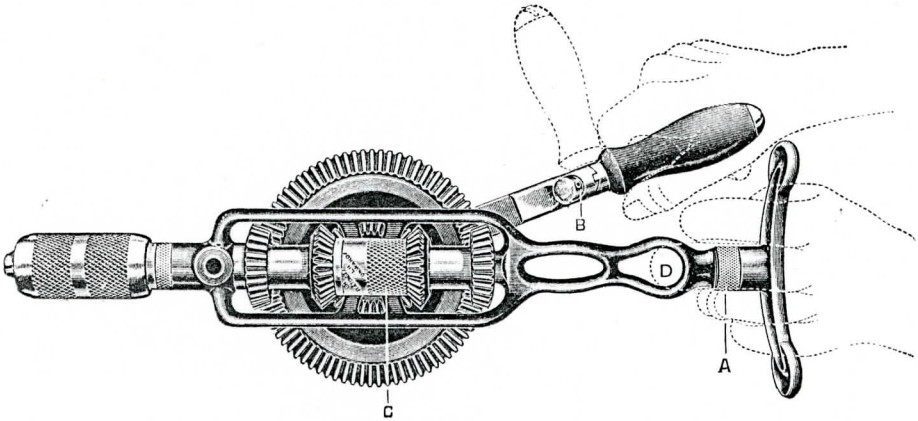


FIG. X

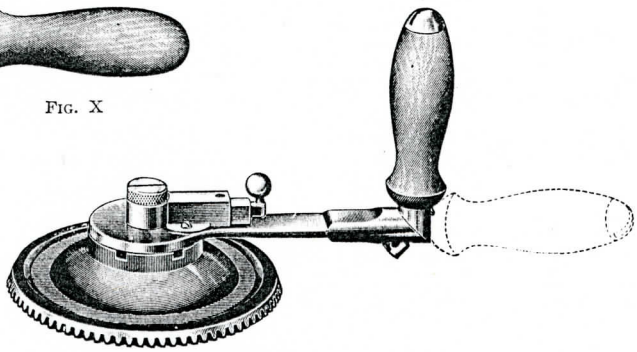


FIG. V

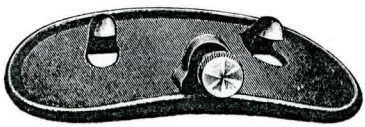


FIG. Y

Capable of performing a number of different movements, all of which are desirable and ingenious.

Selected hardwood handles, stained; malleable iron, black frame; large gear and breast plate red; other metal parts nickeled.

BREAST DRILL No. 87—(Continued)

Breast plate **ADJUSTABLE TO DIFFERENT POSITIONS** at right angles to each other by loosening knurled nut A; **MADE TO FIT THE HAND** and, when grasped, as in main illustration on preceding page, with the middle finger through hole D in the frame, the **TOOL CAN EASILY BE HELD AND STEADIED IN AWKWARD AND OUT-OF-THE-WAY PLACES WHERE THE BREAST PLATE MUST BE HELD IN THE HAND. AUXILIARY** breast plate, as in Figure Y, to be clamped over the regular breast plate, **TO ADD TO EASE AND COMFORT** or for use in **DOING HEAVY WORK.**

Ratchet adjustment C with **POSITIVE MECHANISM** allowing **ACTION WITHOUT RATCHET,** as an ordinary breast drill,
RIGHT HAND RATCHET ACTION,
LEFT HAND RATCHET ACTION,
CONTINUOUS RIGHT HAND RATCHET ACTION, i. e., chuck turns **CONTINUOUSLY ONWARD TO THE RIGHT WHETHER CRANK IS MOVED FORWARD OR BACKWARD,**
CONTINUOUS LEFT HAND RATCHET ACTION, i. e., chuck turns **CONTINUOUSLY ONWARD TO THE LEFT WHETHER CRANK IS MOVED FORWARD OR BACKWARD.**

Crank handle **ADJUSTABLE TO TWO POSITIONS:** one, **AT RIGHT ANGLES TO CRANK,** the other, **IN LINE WITH THE CRANK,** as shown in main illustration, which is of advantage in cramped quarters and increases the power of the crank. Change of position is accomplished by inserting pin shown on the end of handle in Figure X into hole in screw B, as shown in the main illustration, and using the pin as a wrench to loosen the screw. Handle in Figure X is primarily intended to be screwed into the main frame at a point between the chuck and gears and to be used in steadying the tool.

TWO SPEEDS, $2\frac{3}{4}$ to 1 and even; **INSTANTLY CHANGEABLE** by means of the knob shown in Figure V, **WITHOUT REMOVING THE DRILL FROM THE WORK.**

Separate bearings for fast and slow speeds, greatly reducing the friction and increasing the power of the tool.

DOUBLE GEARED; CUT TEETH; small gears of **STEEL.**

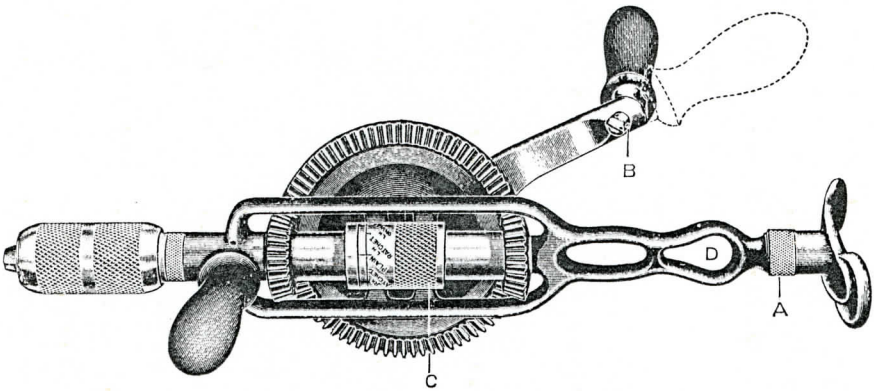
BALL THRUST BEARING with **TAKE UP** in case of wear.

Chuck of the **MASTER** pattern, holding, and centering with reasonable accuracy, **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, No. 1 Morse **TAPER** and all sizes of **BIT STOCK** shanks.

Weight, per dozen (with pasteboard boxes), 96 lbs.
Weight of auxiliary breast plate (included in weight given next above), 1 lb.
Length, 17 inches.
Price, per dozen, **$90.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 84



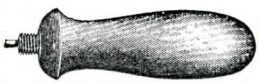


FIG. X

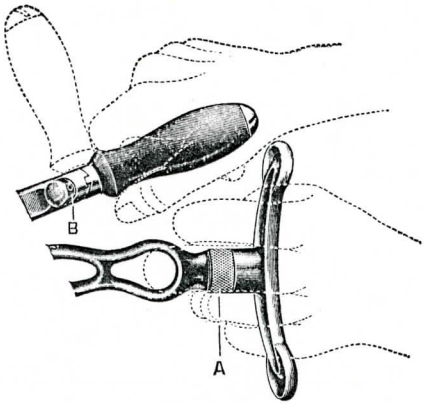


FIG. T

The same as Breast Drill No. 87, shown next preceding, except that it does not have the changeable speed.

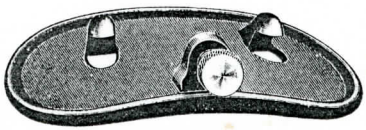


FIG. Y

Weight, per dozen (with pasteboard boxes), 93 lbs.

Weight of auxiliary breast plate (included in weight given next above), 1 lb.

Length, 17 inches.

Price, per dozen, **$76.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL
No. 86

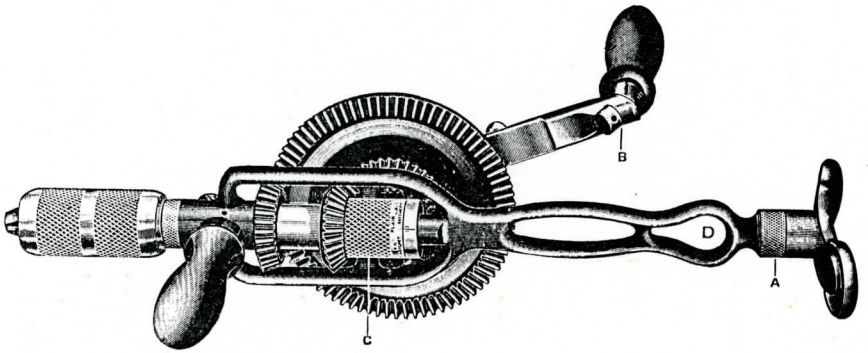


FIG. X

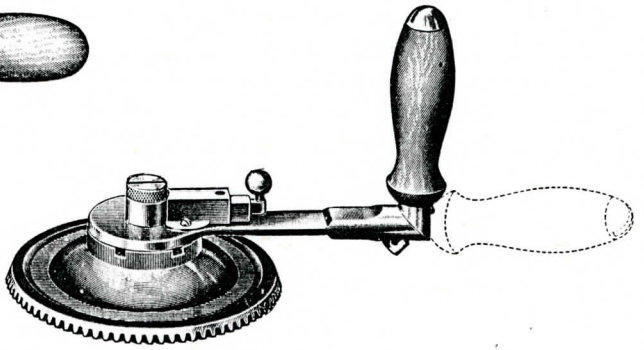


FIG. V

Differs from Breast Drill No. 87, shown preceding, only in that the ratchet mechanism does not have the continuous onward movements.

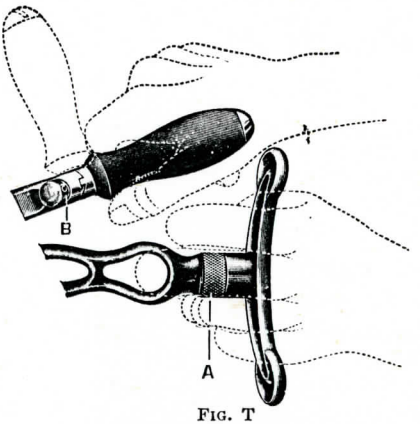


FIG. T

Weight, per dozen (with pasteboard boxes), 91 lbs.

Weight of auxiliary breast plate (included in weight given next above), 1 lb.

Length, 17 inches.

Price, per dozen, **$81.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

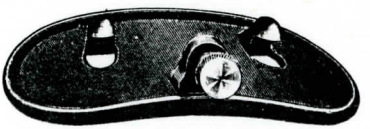


FIG. Y

BREAST DRILL

No. 97

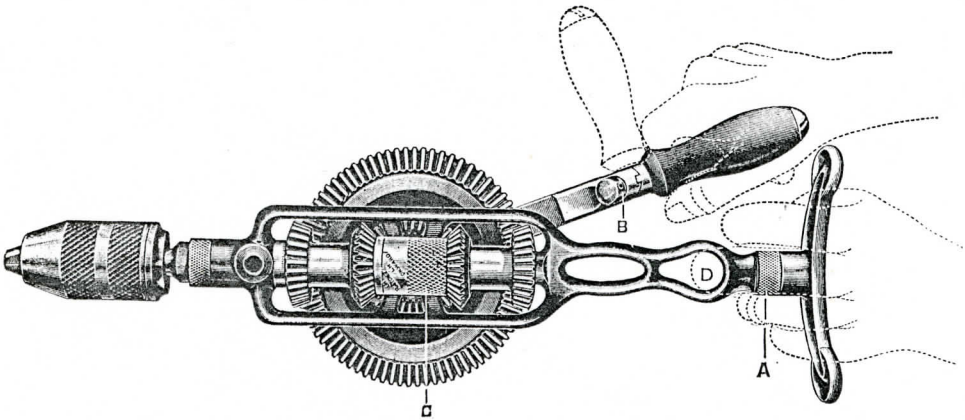


FIG. X

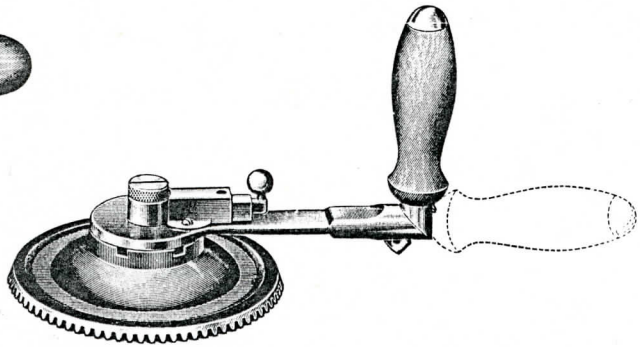


FIG. V

Differs from Breast Drill No. 87, shown preceding, only in that the chuck is of the Star pattern holding round shanks only from 0 to ½ inch in diameter.

Jaws operated by means of springs that are **PROTECTED FROM INJURY** and **WILL NOT GET OUT OF ORDER.**

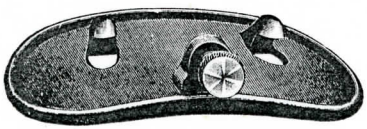


FIG. Y

Weight, per dozen (with pasteboard boxes), 99 lbs.
Weight of auxiliary breast plate (included in weight given next above), 1 lb.
Length, 17½ inches.
Price, per dozen, **$95.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 94

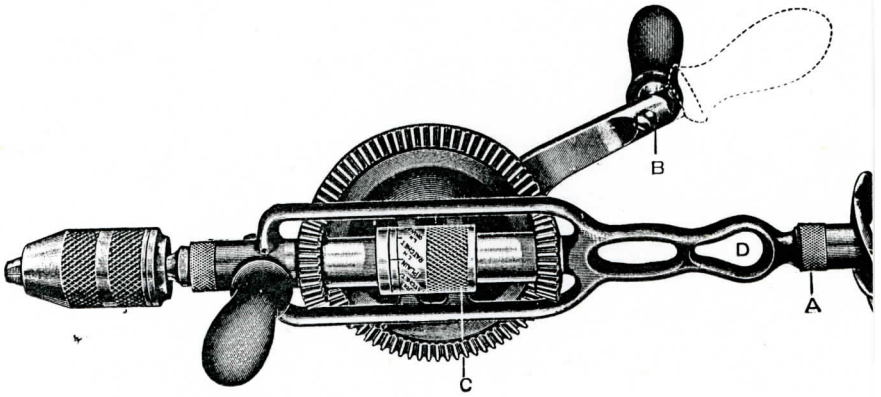


FIG. X

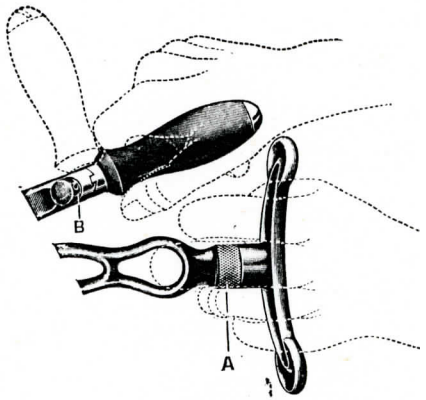


FIG. T

The same as Breast Drill No. 87, shown preceding, except that it does not have a changeable speed and, instead of the Master chuck, has one of the Star pattern made especially to hold round shanks only from 0 to ½ inch in diameter.

Jaws operated by means of springs that are **PROTECTED FROM INJURY** and **WILL NOT GET OUT OF ORDER.**

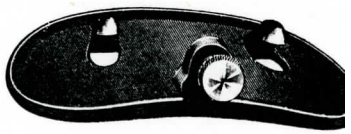


FIG Y

Weight, per dozen (with pasteboard boxes), 96 lbs.
Weight of auxiliary breast plate (included in weight given next above), 1 lb.
Length, 17½ inches.
Price, per dozen, **$81.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 96

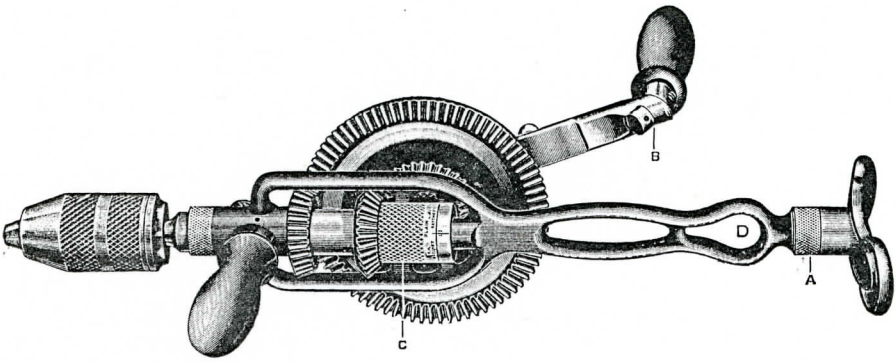


FIG. X

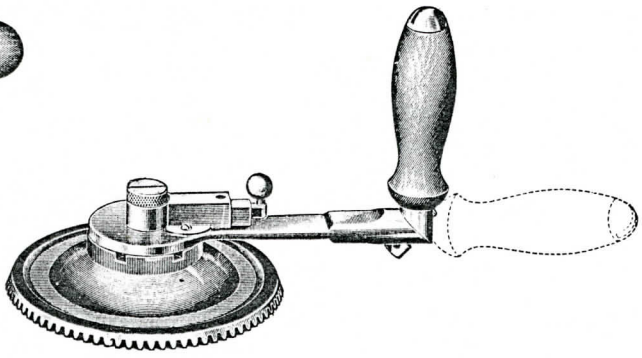


FIG. V

This tool is provided with a Star chuck made especially to hold round shanks from 0 to $\frac{1}{2}$ inch in diameter and its ratchet mechanism does not have the continuous onward movements. In other respects it is the same as Breast Drill No. 87, shown preceding.

Jaws operated by means of springs that are **PROTECTED FROM INJURY** and **WILL NOT GET OUT OF ORDER.**

Weight, per dozen (with pasteboard boxes), 95 lbs.

Weight of auxiliary breast plate (included in weight given next above), 1 lb.

Length, $17\frac{1}{2}$ inches.

Price, per dozen, **$86.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

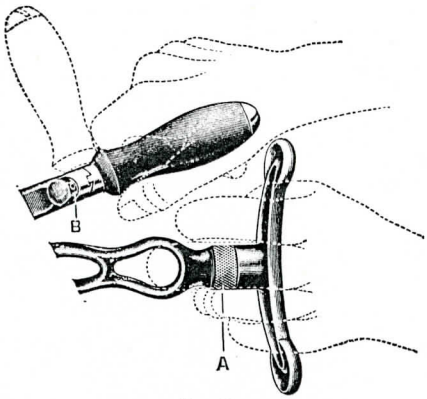


FIG. T

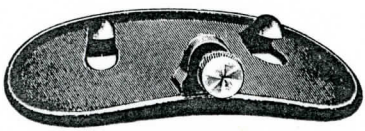
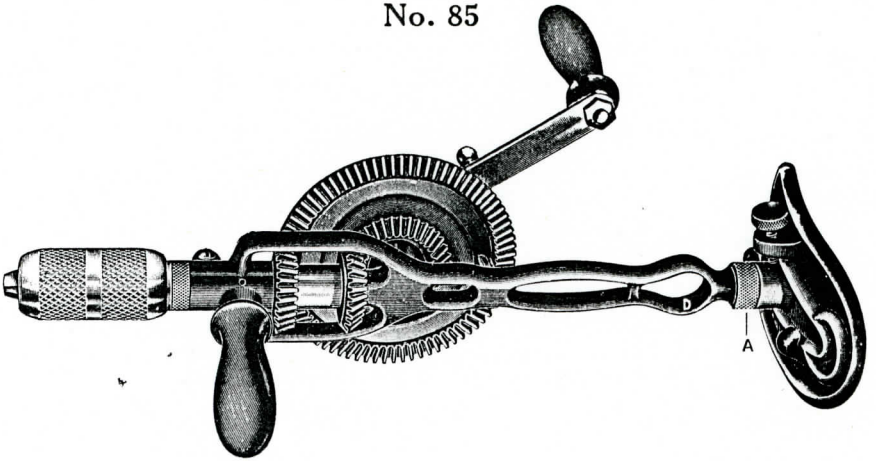
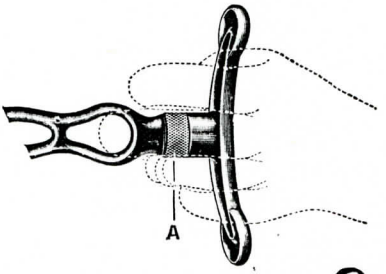


FIG. Y

BREAST DRILL

No. 85





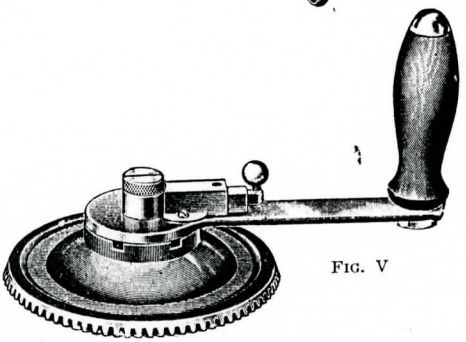


FIG. V

Selected hardwood handles, stained; malleable iron, black frame; large gear and breast plate red; other metal parts nickeled.

Breast plate **ADJUSTABLE TO DIFFERENT POSITIONS** at right angles to each other by loosening knurled nut A; **MADE TO FIT THE HAND** and, when grasped, as in illustration, with the middle finger through hole D in the frame, the **TOOL CAN EASILY BE HELD AND STEADIED IN AWKWARD AND OUT-OF-THE-WAY PLACES WHERE THE BREAST PLATE MUST BE HELD IN THE HAND. AUXILIARY** breast plate, attached in main illustration above, to be clamped over the regular breast plate, **TO ADD TO EASE AND COMFORT** or for use in **DOING HEAVY WORK.**

TWO SPEEDS, $2\frac{3}{4}$ to 1 and even; **INSTANTLY CHANGEABLE** by means of the knob shown in Figure V, **WITHOUT REMOVING THE DRILL FROM THE WORK.**

GEARS WITH CUT TEETH; small gears of **STEEL.**

BALL THRUST BEARING with **TAKE UP** in case of wear.

Chuck of the **MASTER** pattern, holding, and centering with reasonable accuracy, **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, No. 1 Morse **TAPER** and all sizes of **BIT STOCK** shanks.

Weight, per dozen (with pasteboard boxes), 83 lbs.

Weight of auxiliary breast plate (included in weight given next above), 1 lb.

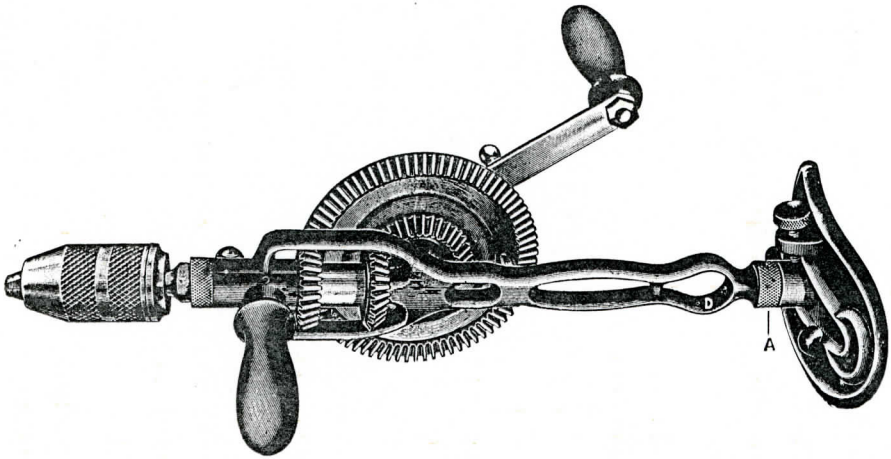
Length, 17 inches.

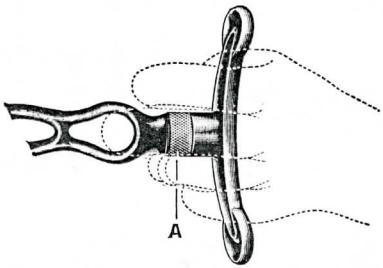
Price, per dozen, **$55.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 95





The same as Breast Drill No. 85, described next preceding, except that, instead of the Master Chuck, it has one of the **STAR** pattern made especially to hold round shanks only from 0 to ½ inch in diameter.

Jaws operated by means of springs that are **PROTECTED FROM INJURY** and **WILL NOT GET OUT OF ORDER.**

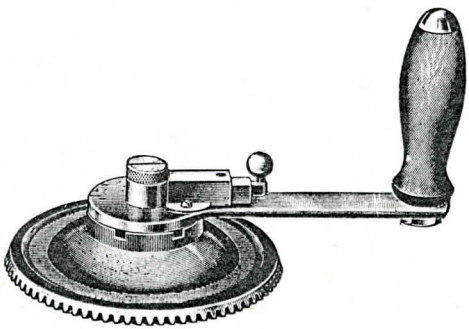


FIG. V

Weight, per dozen (with pasteboard boxes), 84 lbs.

Weight of auxiliary breast plate (included in weight given next above), 1 lb.

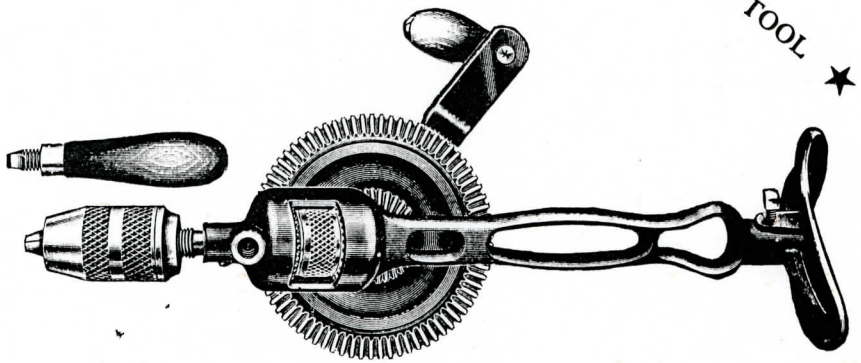
Length, 17½ inches.

Price, per dozen, **$60.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL
No. 2100

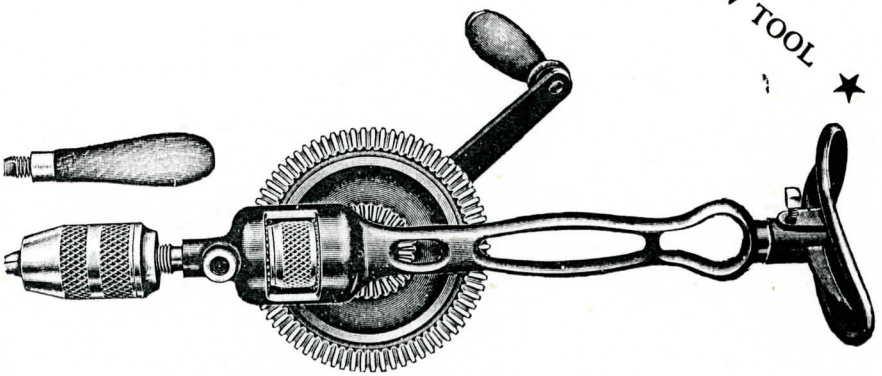
★ NEW TOOL ★



Selected hardwood handles, stained; malleable iron, black frame; large gear, red. Breast plate and crank enameled black; no nickeled parts.
Breast plate **ADJUSTABLE TO DIFFERENT POSITIONS.**
INSTANTLY CHANGEABLE SPEED from 1½ to 1 and 4 to 1.
CUT GEARS; small gears of **STEEL.**
Auxiliary side handle.
Chuck of **STAR** pattern with 3 jaws operated by springs that are **PROTECTED FROM INJURY** and will **NOT GET OUT OF ORDER;** holds round shanks from 0 to ½ inch in diameter.
Weight, per dozen (with pasteboard boxes), 69 lbs.
Length, 17½ inches.
Price, per dozen, **$42.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL
No. 2200

★ NEW TOOL ★

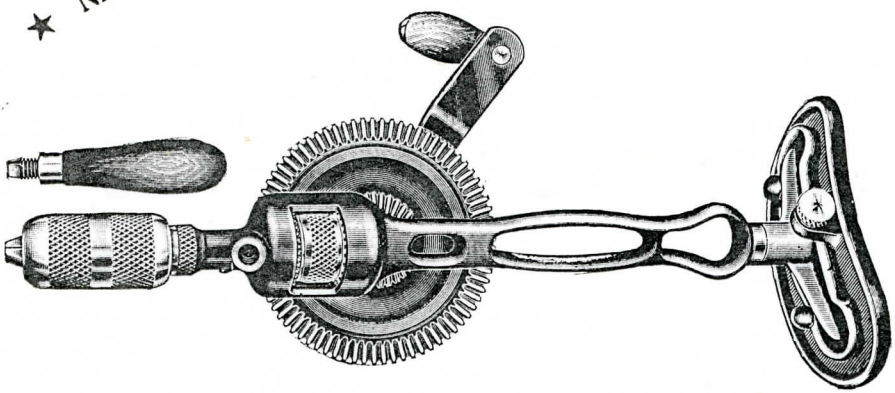


The same as breast drill No. 2100, shown next preceding, except that it is provided with a **SIMPLE AND EFFECTIVE RATCHET,** operated by raising and turning to the right or left the cap to a small boss on the crank handle. (For illustration of ratchet, see page 56.)
Weight, per dozen (with pasteboard boxes), 72 lbs.
Weight of auxiliary breast plate (included in weight given next above), 1 lb.
Length, 17½ inches.
Price, per dozen, **$52.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 99

★ NEW TOOL ★



Selected hardwood handles, stained; malleable iron, black frame; large gear and main breast plate red.

Breast plate **ADJUSTABLE TO DIFFERENT POSITIONS** and **MADE TO FIT THE HAND;** when grasped with middle finger through hole provided for it the **TOOL CAN BE HELD EASILY AND STEADIED IN AWKWARD AND OUT-OF-THE-WAY PLACES WHEN THE BREAST PLATE MUST BE HELD IN THE HAND. AUXILIARY** breast plate, as shown in illustration, **TO ADD EASE AND COMFORT** or for use in **DOING HEAVY WORK.**

INSTANTLY CHANGEABLE SPEED from even to 3 to 1.

CUT GEARS; small gears of **STEEL.**

BALL THRUST BEARING.

Chuck of the **MASTER** pattern, holding, and centering with reasonable accuracy, **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, No. 1 Morse **TAPER** and all sizes of **BIT STOCK** shanks.

Weight, per dozen (with pasteboard boxes), 83 lbs.

Weight of auxiliary breast plate (included in weight given next above), 1 lb.

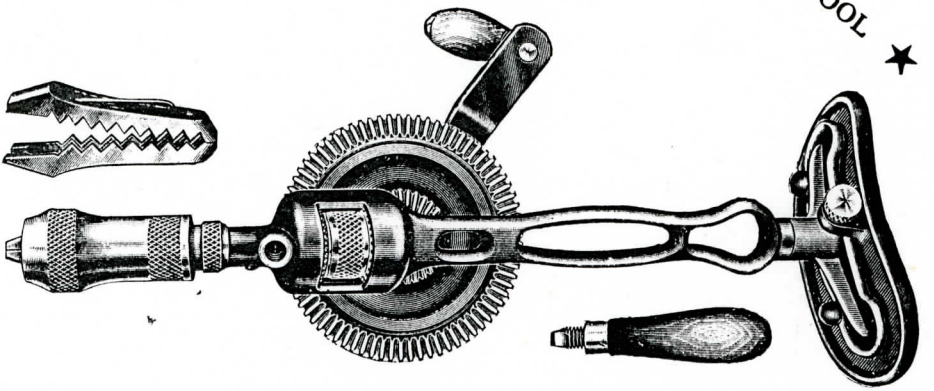
Length, 18 inches.

Price, per dozen, **$43.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL
No. 99A

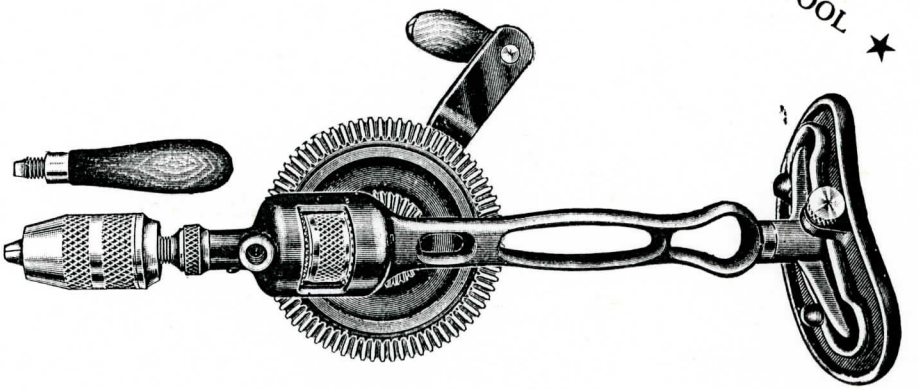
★ NEW TOOL ★



The same as drill No. 99, shown next preceding, except that chuck is of the **BARBER IMPROVED** pattern with **ALLIGATOR JAWS.**
Weight, per dozen (with pasteboard boxes), 81 lbs.
Weight of auxiliary breast plate (included in weight given next above), 1 lb.
Length, 18½ inches.
Price, per dozen, **$42.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL
No. 100

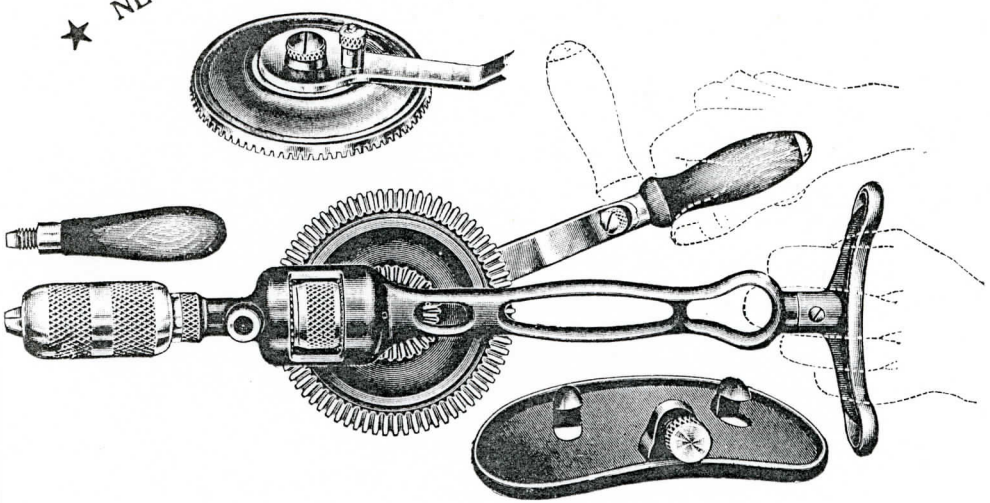
★ NEW TOOL ★



The same as No. 99, shown preceding, except that chuck is of the **STAR** pattern with three jaws holding round shanks from 0 to ¼ inch in diameter. Jaws are operated with springs that are **PROTECTED FROM INJURY** and will **NOT GET OUT OF ORDER.**
Weight, per dozen (with pasteboard boxes), 85 lbs.
Weight of auxiliary breast plate (included in weight given next above), 1 lb.
Length, 18 inches.
Price, per dozen, **$49.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

★ NEW TOOL ★

BREAST DRILL
No. 199



Selected hardwood handles, stained; malleable iron, black frame; large gear and breast plate red.

Breast plate **ADJUSTABLE TO DIFFERENT POSITIONS** and **MADE TO FIT THE HAND;** when grasped with middle finger through hole provided for it the **TOOL CAN BE HELD EASILY AND STEADIED IN AWKWARD AND OUT-OF-THE-WAY PLACES WHEN THE BREAST PLATE MUST BE HELD IN THE HAND. AUXILIARY** breast plate, as shown in illustration, **TO ADD EASE AND COMFORT** or for use in **DOING HEAVY WORK.**

Crank handle **ADJUSTABLE TO TWO POSITIONS:** one, **AT RIGHT ANGLES TO CRANK,** the other, **IN LINE WITH THE CRANK,** which is of advantage in cramped quarters and increases the power of the crank.

Provided with **SIMPLE AND EFFECTIVE RATCHET,** operated by raising and turning to the right or left the cap to a small boss on the crank handle. This is a convenience in cramped places or when doing delicate work.

INSTANTLY CHANGEABLE SPEED from even to 3 to 1.

CUT GEARS, small gears of **STEEL.**

BALL THRUST BEARING.

Chuck of the **MASTER** pattern, holding, and centering with reasonable accuracy, **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, No. 1 Morse **TAPER** and all sizes of **BIT STOCK** shanks.

Weight, per dozen (with pasteboard boxes), 83 lbs.

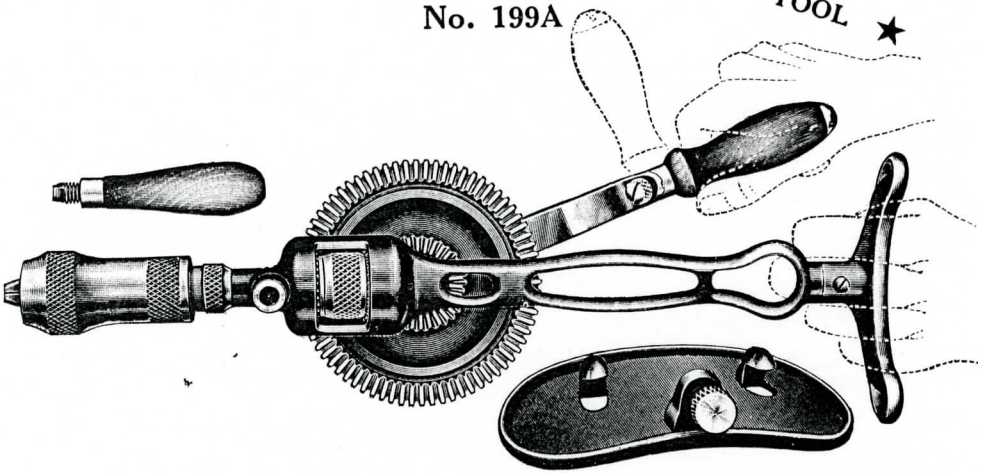
Weight of auxiliary breast plate (included in weight given next above), 1 lb.

Length, 18 inches.

Price, per dozen, **$53.00.**

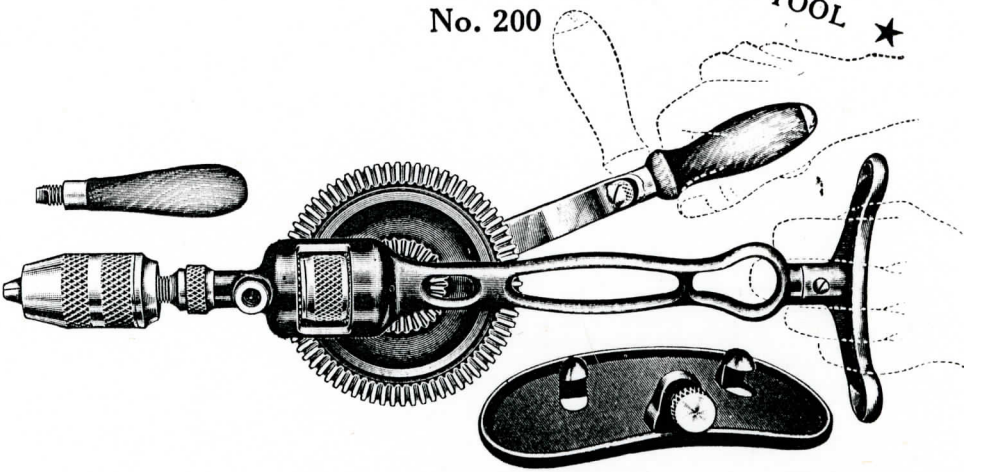
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL ★ NEW TOOL ★
No. 199A



The same as No. 199, shown next preceding, except that chuck is of the **BARBER IMPROVED** pattern with **ALLIGATOR JAWS.**
Weight, per dozen (with pasteboard boxes), 81 lbs.
Weight of auxiliary breast plate (included in weight given next above), 1 lb.
Length, 18½ inches.
Price, per dozen, **$52.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

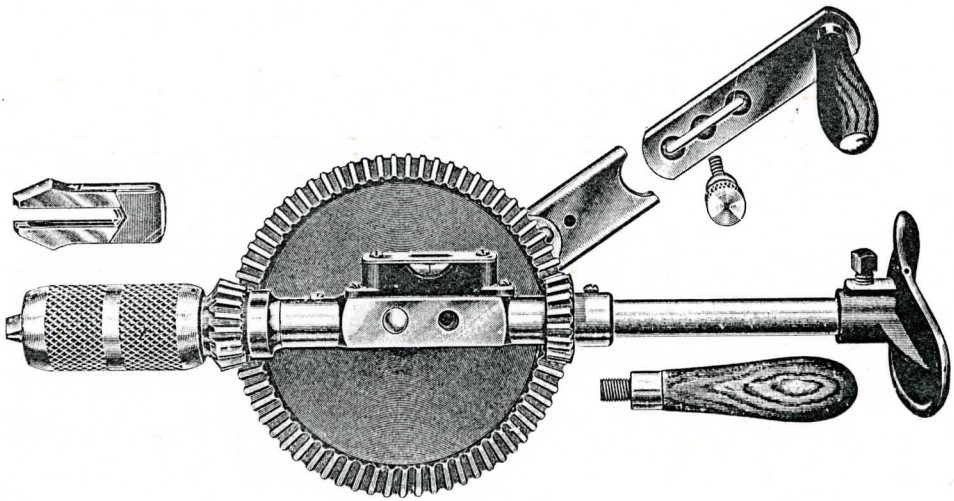
BREAST DRILL ★ NEW TOOL ★
No. 200



The same as No. 199, shown preceding, except that chuck is of the **STAR** pattern with three jaws holding round shanks from 0 to ½ inch in diameter. Jaws are operated with springs that are **PROTECTED FROM INJURY** and will **NOT GET OUT OF ORDER.**
Weight, per dozen (with pasteboard boxes), 85 lbs.
Weight of auxiliary breast plate (included in weight given next above), 1 lb.
Length, 18 inches.
Price, per dozen, **$59.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 13



Rare tropical wood handles; **SOLID STEEL MAIN STOCK**; large gear and under side of breast plate painted red; other metal parts **POLISHED AND NICKELED**.

Breast plate **ADJUSTABLE** to different positions and removable.

EXTENSIBLE CRANK with radius of 5½ to 7 inches, **ADDING TO POWER** of the tool.

CUT GEARS; large gear 6 inches in diameter, giving speed of 4½ to 1; idler gear to **EQUALIZE BEARINGS. PINIONS OF STEEL.**

Patent **LEVEL ATTACHMENT.**

BALL THRUST BEARING.

MASTER CHUCK holding, and centering with reasonable accuracy, **ROUND** shanks from ⅛ to ½ inch in diameter, all sizes of **BIT STOCK** and No. 1 **TAPER** shanks.

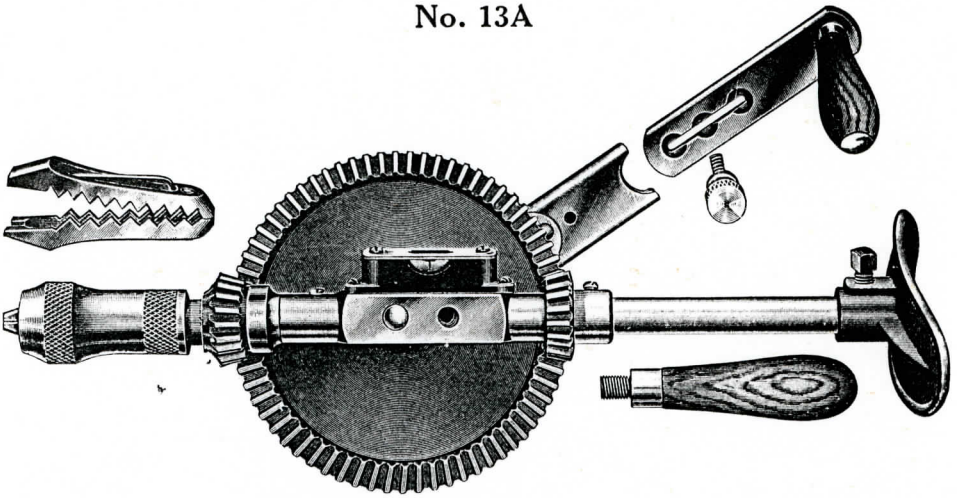
Length, 15 inches.

Weight, per dozen (with pasteboard boxes), 70 lbs.

Price, per dozen, **$55.00.**

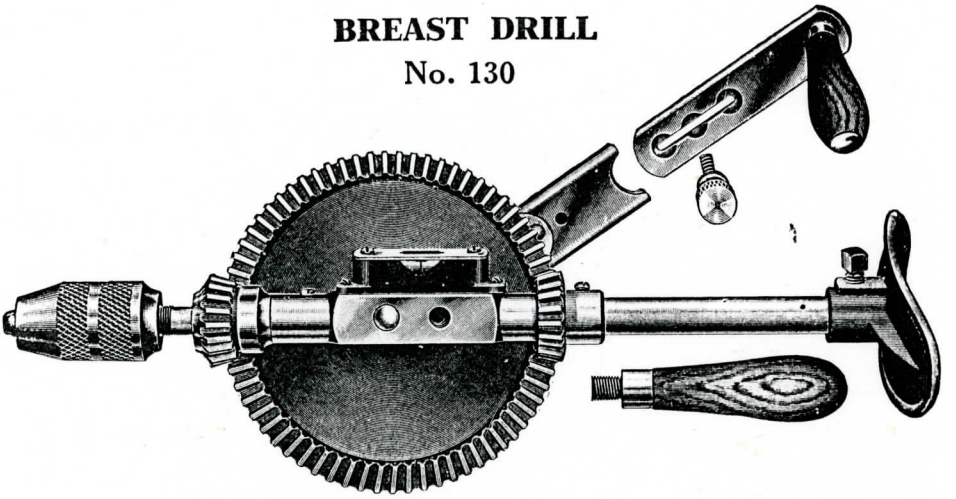
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL
No. 13A



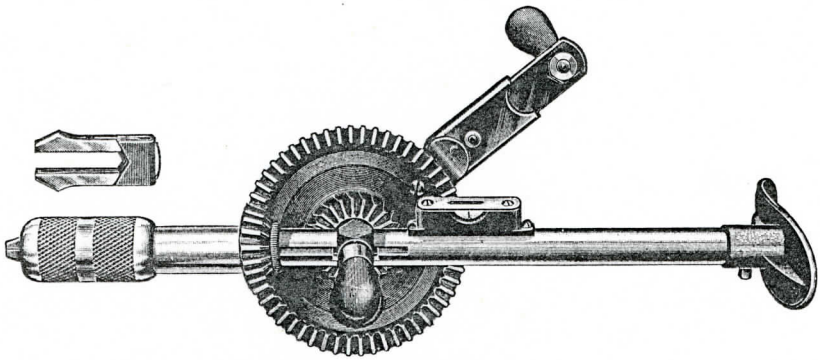
The same as Breast Drill No. 13, shown next preceding, except that chuck is of the **BARBER IMPROVED** pattern with **ALLIGATOR JAWS.**
Length, 15 inches.
Weight, per dozen (with pasteboard boxes), 66 lbs.
Price, per dozen, **$54.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL
No. 130



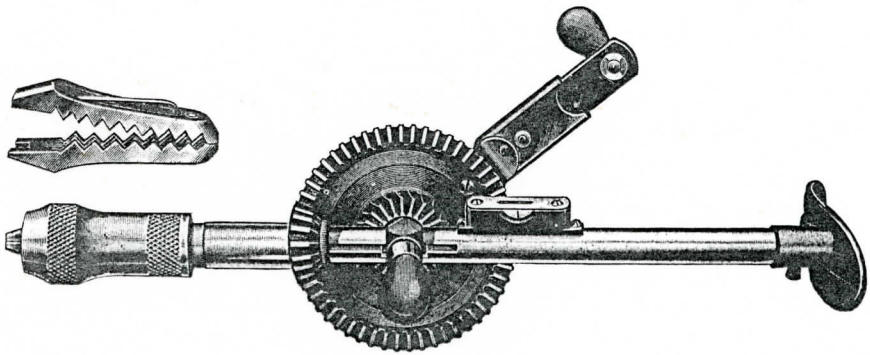
The same as Breast Drill No. 13, shown preceding, except that chuck is of the **STAR** pattern, with three jaws, made especially for holding round shanks only from 0 to ½ inch in diameter.
Jaws are operated by springs that are **PROTECTED FROM INJURY** and **WILL NOT GET OUT OF ORDER.**
Length, 15 inches.
Weight, per dozen (with pasteboard boxes), 72 lbs.
Price, per dozen, **$63.00.**
Packed 1 in a pasteboard box and 1 dozen in a case

BREAST DRILL
No. 10



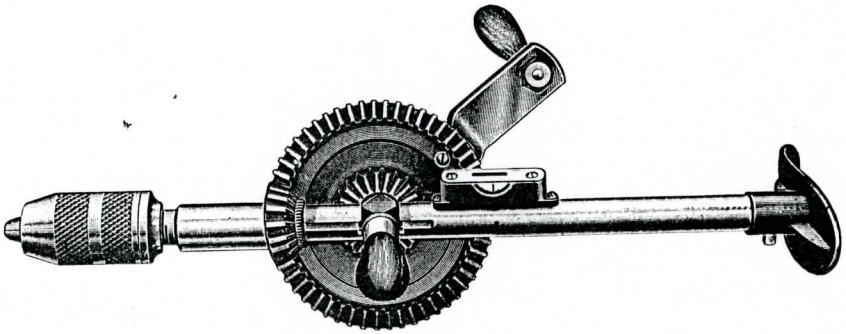
Rare tropical wood handles; **SOLID STEEL FRAME**; large gear and under side of breast plate painted red; other metal parts **POLISHED AND NICKELED.**
Breast plate **ADJUSTABLE** to different positions or removable.
EXTENSIBLE CRANK with radius from 5½ to 7 inches, **ADDING POWER** to the tool.
Patent **LEVEL** attachment.
CUT GEARS with **CHANGEABLE SPEED** from even to 3 to 1. **PINION OF STEEL.**
BALL THRUST BEARING.
MASTER CHUCK holding **ROUND** shanks from ⅛ to ½ inch in diameter, **BIT STOCK** and No. 1 **TAPER** shanks.
Length, 17 inches.
Weight, per dozen (with pasteboard boxes), 78 lbs.
Price, per dozen, **$47.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL
No. 10A



The same as Breast Drill No. 10, shown next preceding, excepting chuck which is of the **BARBER IMPROVED** pattern with **ALLIGATOR JAWS.**
Length, 17½ inches.
Weight, per dozen (with pasteboard boxes), 74 lbs.
Price, per dozen, **$46.00.**
Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL
No. 11



Rare tropical wood handles; **SOLID STEEL MAIN STOCK**; larger gear and under side of breast plate painted red; other metal parts **POLISHED AND NICKELED.**

Breast plate **ADJUSTABLE** to different positions and removable.

Patent **LEVEL** attachment.

CHANGEABLE SPEED from even to 3 to 1.

CUT GEARS. PINION OF STEEL.

BALL THRUST BEARING.

Three-jawed chuck of the Star pattern, holding, and centering accurately, round shanks only from 0 to $\frac{3}{8}$ inch in diameter.

Jaws are operated by springs that are **PROTECTED FROM INJURY** and **WILL NOT GET OUT OF ORDER.**

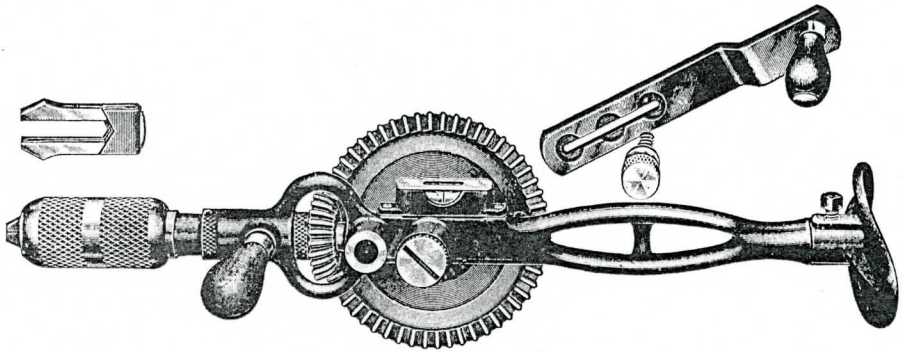
Length, 15 inches.

Weight, per dozen (with pasteboard boxes), 65 lbs.

Price, per dozen, **$47.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL
No. 12 Improved



Stained hardwood handles; large gear and breast plate painted green and malleable iron main stock enameled black; chuck and crank **NICKELED.**

Breast plate **ADJUSTABLE** to different positions and removable.

Patent **LEVEL ATTACHMENT.**

CUT GEARS; large gear with **IDLER ROLL** to equalize bearings. **PINION OF STEEL.**

THOROUGHLY EQUIPPED WITH BALL-BEARINGS.

EXTENSIBLE CRANK with radius from 4 to 6 inches, **ADDING TO THE POWER** of the tool.

CHANGEABLE SPEED from even to 3 to 1.

MASTER CHUCK holding **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, all sizes of **BIT STOCK** and No. 1 **TAPER** shanks.

Length, $17\frac{1}{2}$ inches.

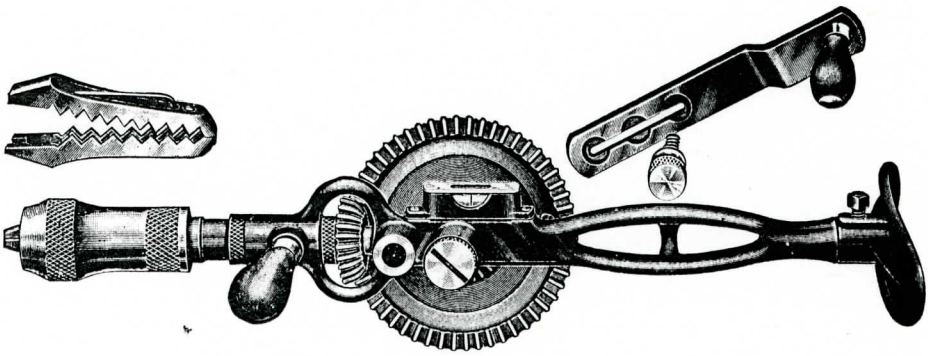
Weight, per dozen (with pasteboard boxes), 79 lbs.

Price, per dozen, **$40.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 12A



The same as Breast Drill No. 12, shown next preceding, excepting that chuck is of the **BARBER IMPROVED** pattern with **ALLIGATOR JAWS.**

Length, 17½ inches.

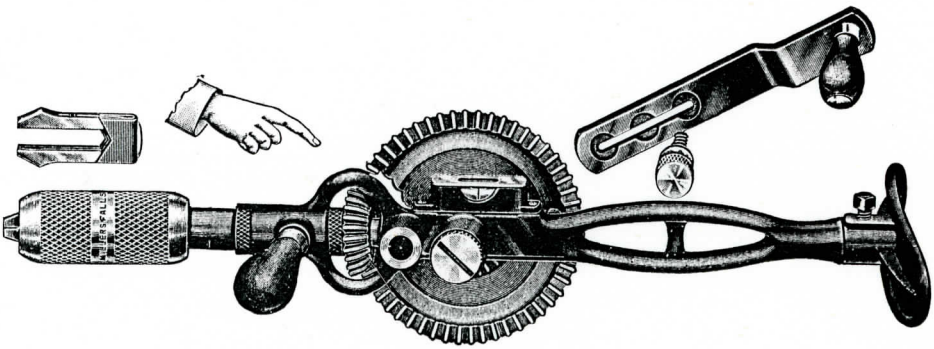
Weight, per dozen (with pasteboard boxes), 75 lbs.

Price, per dozen, **$39.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 012



The same as Breast Drill No. 12 shown preceding, excepting latch, as indicated with hand in illustration, for locking the gears when inserting a bit into, or removing it from, the chuck.

Length, 17½ inches.

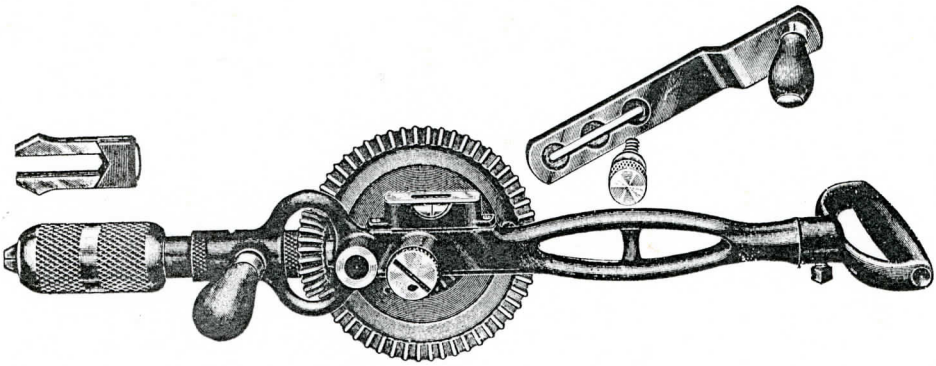
Weight, per dozen (with pasteboard boxes), 80 lbs.

Price, per dozen, **$43.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 15



Stained hardwood handles; large gear painted green and D shaped handle and malleable iron main stock enameled black; chuck and crank **NICKELED.**

D handle **ADJUSTABLE** to different positions and removable.

Patent **LEVEL ATTACHMENT.**

CUT GEARS; large gear with idler roll to equalize bearings. **PINION OF STEEL.**

BALL THRUST BEARING.

EXTENSIBLE CRANK with radius from 4 to 6 inches, **ADDING POWER** to the tool.

CHANGEABLE SPEED from even to 3 to 1.

MASTER CHUCK holding **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, **BIT STOCK** and No. 1 **TAPER** shanks.

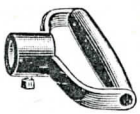
Length, 19 inches.

Weight, per dozen (with pasteboard boxes), 79 lbs.

Price, per dozen, **$40.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

D HANDLE FOR BREAST DRILLS



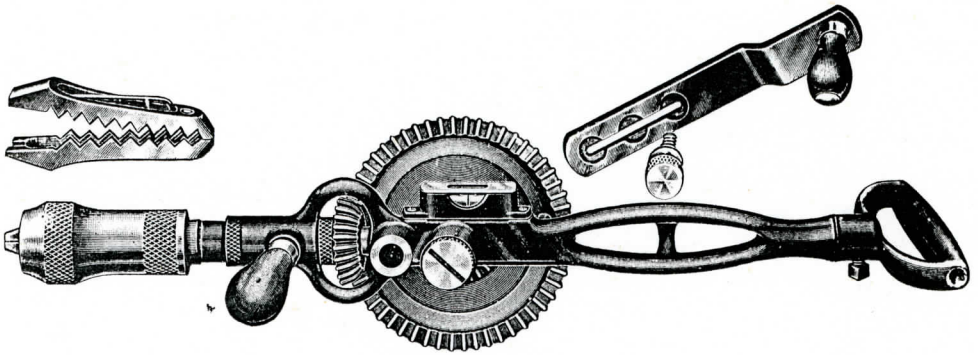
Fits all our Breast Drills except Nos. 85, 86, 95 and 96.

Price, per dozen, **$4.00.**

Can be substituted for Breast Plates at regular prices.

BREAST DRILL

No. 15A



The same as Breast Drill No. 15, shown next preceding, excepting chuck, which is of the **BARBER IMPROVED** pattern with **ALLIGATOR JAWS.**

Length, 19 inches.

Weight, per dozen (with pasteboard boxes), 75 lbs.

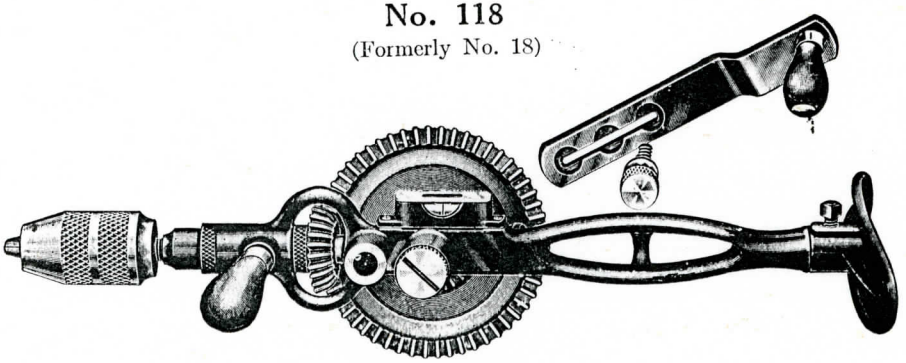
Price, per dozen, **$39.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

BREAST DRILL

No. 118

(Formerly No. 18)



Same as Breast Drill No. 15, shown preceding, except that chuck is of the **STAR** pattern with three jaws, made especially for holding round shanks from 0 to ½ inch in diameter, and that breast plate is provided instead of D handle.

Jaws are operated by springs that are **PROTECTED FROM INJURY** and **WILL NOT GET OUT OF ORDER.**

Length, 17½ inches.

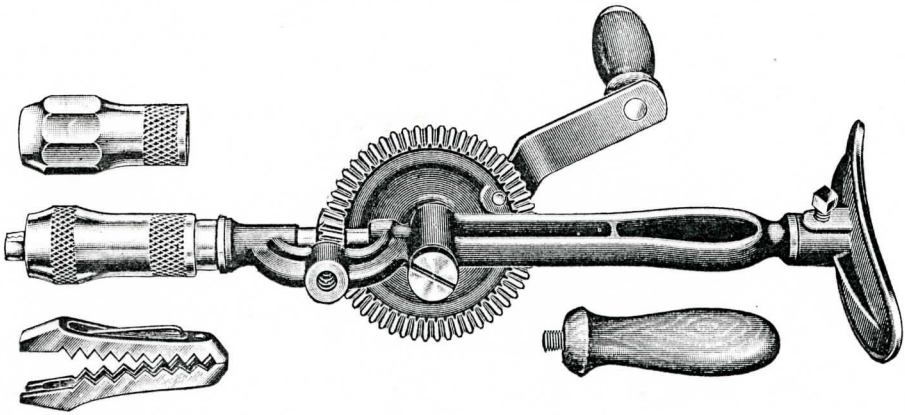
Weight, per dozen (with pasteboard boxes), 81 lbs.

Price, per dozen, **$47.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

★ NEW TOOL ★

BREAST DRILL
No. 112



Stained hardwood handles; malleable iron frame painted dull black; large gear and underside of breast plate painted red; crank black oxidized ("Nox") finish; chuck polished.

Breast plate **ADJUSTABLE** to different positions and removable.

CUT GEARS; small gears of **STEEL**; ratio $3\frac{1}{2}$ to 1; diameter of large gear, 4 inches.

Radius of crank, 4 inches.

Hardened steel washer as thrust bearing.

BARBER IMPROVED CHUCK with **ALLIGATOR JAWS**, made from forged bit jaw steel and holding bit stock and many sizes of round shanks.

Length, 15 inches.

Weight, per dozen (with pasteboard boxes), 48 lbs.

Price, per dozen, **$24.00.**

Packed 1 in a pasteboard box.

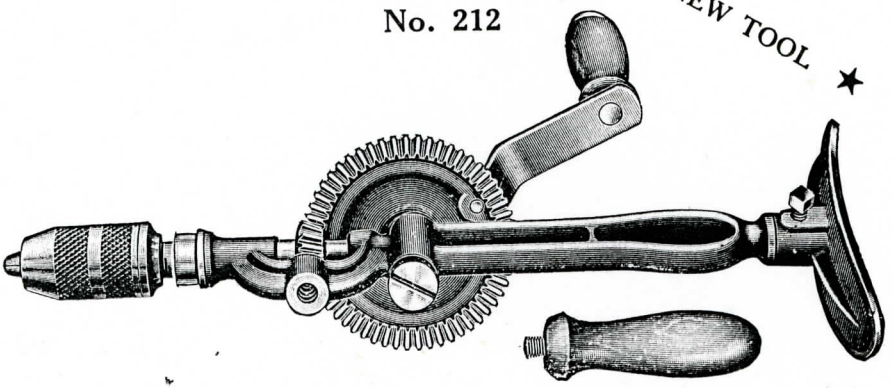
Furnished with octagon, instead of round, shells, per dozen extra, **$0.50.**

Extra jaws, plain with fine print for small sizes of round shanks, per dozen, **$2.40.**

Put up with levels, extra per dozen, **$1.50.**

BREAST DRILL
No. 212

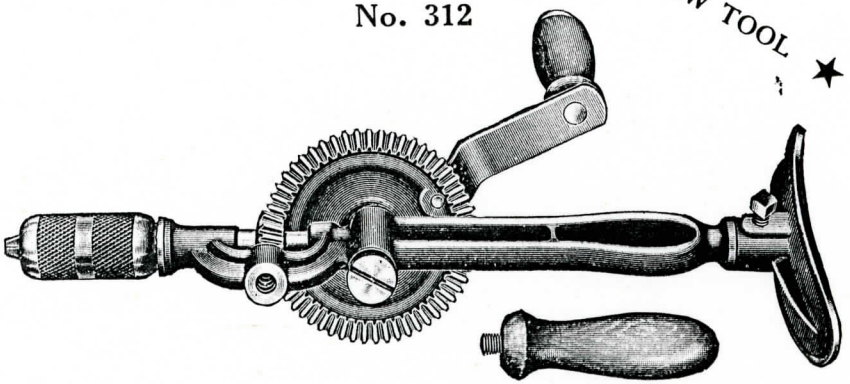
★ NEW TOOL ★



Stained, hardwood handles; malleable iron frame painted dull black; large gear and under side of breast plate painted red; crank black oxidized ("Nox") finish; chuck polished.
Breast plate **ADJUSTABLE** to different positions and removable.
CUT GEARS; small gears of **STEEL;** ratio 3½ to 1; diameter of large gear 4 inches.
Radius of crank, 4 inches.
Hardened steel washer as thrust bearing.
STAR CHUCK with large jaws, holding and centering accurately round shanks from 0 to ⅜ inch in diameter. The jaws in this chuck are operated by **SPRINGS THAT ARE PROTECTED FROM INJURY AND WILL NOT GET OUT OF ORDER.**
Length, 14½ inches.
Weight, per dozen (with pasteboard boxes), 44 pounds.
Price, per dozen, **$28.00.**
Packed 1 in a pasteboard box.

BREAST DRILL
No. 312

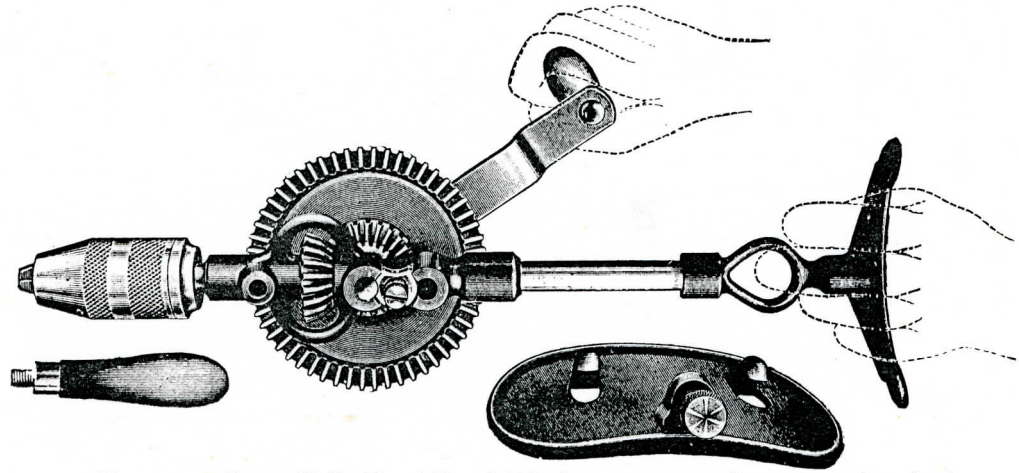
★ NEW TOOL ★



The same as drill No. 212 shown above, excepting that it has **MASTER CHUCK** instead of **STAR.** This chuck holds and centers with reasonable accuracy **ROUND SHANKS** from ⅛ to ½ inch in diameter, all sizes of **BIT STOCK** and **NO. 1 TAPER** shanks.
Length, 15 inches.
Weight, per dozen (with pasteboard boxes), 52 pounds.
Price, per dozen, **$26.00.**
Packed 1 in a pasteboard box.

BREAST DRILLS

Nos. 029 and 291



The same as Breast Drills Nos. 019 and 191, shown next preceding, except that chuck is of the **STAR** pattern with three jaws holding round shanks from 0 to $\frac{1}{2}$ inch in diameter.

Jaws are operated by springs that are **PROTECTED FROM INJURY** and **WILL NOT GET OUT OF ORDER.**

Length, over all, $18\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), 87 lbs.

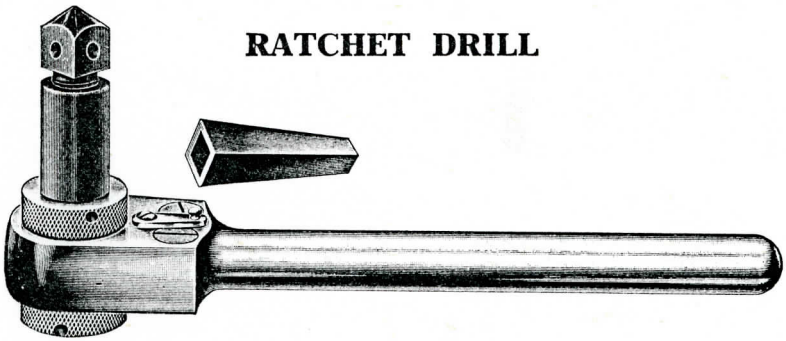
Weight of auxiliary breast plate (included in weight given next above), 1 lb.

No. 029 (polished), per dozen, **$39.00.**

No. 291 (nickeled), per dozen, **$44.00.**

Packed 1 in a pasteboard box and 1 dozen in a case.

RATCHET DRILL



Handsomely **NICKELED.**

Distance from top of feed screw to mouth of socket, **FOUR INCHES** only.

Socket hole for shanks $\frac{5}{8}$x$\frac{3}{8}$x$1\frac{1}{2}$ inches.

Extra socket to hold bit stock shanks provided with each drill without additional charge.

Nos.	10	12	14
Length of lever	10 in.	12 in.	14 in.
Weight, each	$2\frac{1}{2}$ lbs.	3 lbs.	$3\frac{1}{2}$ lbs.
Price, each	**$4.00**	**$4.50**	**$5.00**

Packed 1 in a pasteboard box.

PRICES OF PARTS OF HAND AND BREAST DRILLS

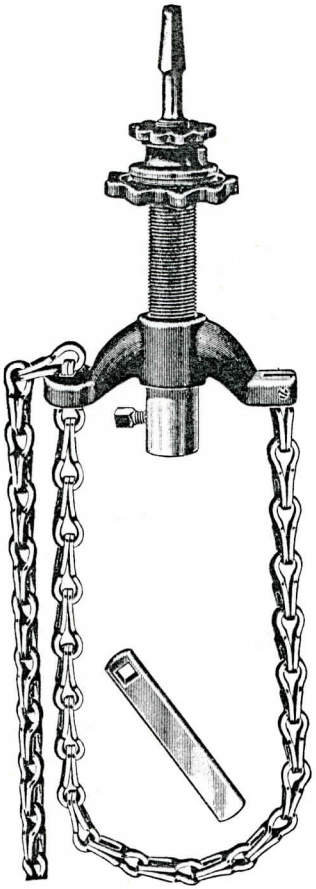
HAND DRILLS

No.	Main Handle, each	Stationary Side Handle, each	Crank and Handle, per set	Chuck complete, each	Jaws, per set	Large Gear, each	Small Gear, each	Main Frame, each
1	$.40	.15	.20	.65	.25	.25	.07	.35
01	$.20	.15	.20	.65	.25	.25	.07	.35
2	$.55	.15	.25	1.30	.40	.50	.15	.50
02	$.20	.15	.20	1.30	.40	.50	.15	.50
2B	$.25	.15	.20	1.30	.40	.50	.15	.50
3	$.35	.15	.20	.65	.25	.25	.07	.15
03	$.35	.15	.20	.65	.25	.25	.07	.15
3A	$.35	.15	.20	.65	.25	.25	.07	.15
4	..	..	.07	.07		.15	.07	.20
4D	..	..	.07	.45	.20	.15	.07	.20
5	$.35	.15	.20	.65	.25	.35	.07	.35
05	$.20	.15	.20	.65	.25	.35	.07	.35
7	$.25	.15	.15	.90	.35	.35	.15	.30
08	$.55	.15	.20	1.30	.40	.50	.15	.60
04	$.30	.15	.20	1.00	.40	.20	.07	.35
05	$.35	.15	.20	1.00	.35	.25	.07	.35
07	$.65	.15	.20	1.00	.35	.25	.07	.40
08	$.55	.15	a1.00	1.30	.40	.50	.15	.60
03	$.20	.15	.20	.65	.25	.25	.07	.15
04	$.30	.15	.20	1.00	.40	.30	.07	.15
06	$.35	.15	a .85	1.00	.35	.50	.07	b.35
07	$.65	.15	.20	1.00	.35	.25	.07	.15
13	$.20	.15	.20	.65	.25	.25	.07	.15
16	$.35	.15	.20	1.00	.35	.50	.07	b.35
43	$.20	.15	.20	.65	.25	.50	.07	.15
53	$.20	.15	a .85	.65	.25	.50	.07	.15
80	$.55	.15	.20	1.30	.40	.50	.15	.60
81	$.65	.15	.20	1.30	.40	.50	.15	.60
80	$.55	.15	a1.00	1.30	.40	.50	.15	.60
81	$.65	.15	a1.00	1.30	.40	.50	.15	.60

a—includes ratchet mechanism; b—includes two rts; c—per pair; d—per set of three jaws; e—ludes cone bearing; f—includes two gear bearrs and speed shifter; g—includes crank bearing d ratchet stud; h—includes small gear and pin same; i—has ratchet plate and two pins; j—ludes gear arbor; k—crank complete with all rews; m—cast iron frame only.

BREAST DRILLS

No.	Chuck complete, each	Chuck Jaws	Chuck Shell, each	Chuck Socket, each	Frame, each	Large Gear, each	Small Gear, each	Crank only, each	Crank Handle, Wood only, each	Bolt and Nut for C'nk H'dl, per set	Stationary Side Handle, each	Breast Plate, each	Auxiliary Breast Plate, each	D or Spade Handle, each	Gear Screw, each	Crank Screw, each	Long Ball Cup, each	Short Ball Cup, each	Spindle, each	Frame Stem, each	Joint Screw, each	Level, each
10	h$1.80	c.55	.60	.90	.40	.75	.50	k.60	.20	.15	.20	.35	..	..	.07	.07	.07	..	..	..	..	.25
10A	h$1.30	c.35	.55	.65	.40	.75	.50	k.60	.20	.15	.20	.35	..	..	.07	.07	.07	..	..	..	..	.25
11	$1.00	d.40	.35	.20	.40	.75	.50	.15	.20	.15	.20	.35	..	..	.07	..	.07	..	..	..	..	.25
12	$1.20	c.55	.60	.40	.80	j.60	.20	.20	.20	.15	.20	.20	..	..	.07	.07	.07	.07	..	..	..	.25
12A	$1.15	c.35	.55	.55	.80	j.60	.20	.20	.20	.15	.20	.20	..	..	.07	.07	.07	.07	..	..	..	.25
012	$1.20	c.55	.60	.40	.80	j.60	.20	.20	.20	.15	.20	.20	..	..	.07	.07	.07	.07	..	..	..	.25
13	h$1.40	c.55	.60	.60	.65	.50	.20	k.60	.20	.15	.20	.35	..	..	.07	.07	.15	..	..	..	..	.25
13A	h$1.35	c.35	.55	.60	.65	.50	.20	k.60	.20	.15	.20	.35	..	..	.07	.07	.15	..	..	..	..	.25
15	$1.20	c.55	.60	.40	.80	j.60	.20	.20	.20	.15	.20	..	..	.30	.07	.07	.07	.07	..	..	..	.25
15A	$1.15	c.35	.60	.60	.80	j.60	.20	.20	.20	.15	.20	..	..	.30	.07	.07	.07	.07	..	..	..	.25
19	$ .80	c.35	.40	.30	m.55	j.55	.20	.07	.15	.15	.20	.30	..	..	.07	.07	.07	..	..	.20	..	..
019	$ .80	c.35	.40	.30	m.55	j.55	.20	.07	.15	.15	.20	.35	.35	..	.07	.07	.07	..	..	.20	..	..
29	$1.80	d.40	.40	.15	m.55	j.55	.20	.07	.15	.15	.20	.30	..	..	.07	.07	.07	..	e.30	.20	..	..
029	$1.80	d.40	.40	.15	m.55	j.55	.20	.07	.15	.15	.20	.35	.35	..	.07	.07	.07	..	e.30	.20	..	..
84	$1.20	c.55	.60	.50	.80	.60	.30	.40	.15	.35	.20	.35	.35	..	.07	..	.07	..	..	..	.07	..
85	$1.20	c.55	.60	.50	.95	.60	.35	f1.50	.15	.35	.20	.35	.35	..	.07	..	.07	..	..	..	..	..
86	$1.20	c.55	.60	.50	1.00	.60	.40	f2.00	.15	.35	.20	.35	.35	..	.07	..	.07	..	..	..	.07	..
87	$1.20	c.55	.60	.50	.80	.60	.40	f2.00	.15	.35	.20	.35	.35	..	.07	..	.07	..	..	..	.07	..
94	$1.90	d.40	.50	.20	.80	.60	.30	.40	.15	.35	.20	.35	.35	..	.07	..	.07	..	e.80	..	.07	..
95	$1.90	d.40	.50	.20	.95	.60	.35	f1.50	.15	.35	.20	.35	.35	..	.07	..	.07	..	e.55	..	..	..
96	$1.90	d.40	.50	.20	1.00	.60	.40	f2.00	.15	.35	.20	.35	.35	..	.07	..	.07	..	e.55	..	.07	..
97	$1.90	d.40	.50	.20	.80	.60	.40	f2.00	.15	.35	.20	.35	.35	..	.07	..	.07	..	e.80	..	.07	..
99	$1.20	c.55	.60	.40	.90	.55	.15	.15	.15	.07	.20	.15	.35	..	.07	.02	.07	..	..	..	..	..
99A	$ .95	c.35	.55	.35	.90	.55	.15	.15	.15	.07	.20	.15	.35	..	.07	.02	.07	..	..	..	..	..
100	$1.90	d.40	.50	.20	.90	.55	.15	.15	.15	.07	.20	.15	.35	..	.07	.02	.07	..	e.30	..	..	..
112	$ .85	c.35	.35	.30	.35	j.30	.15	.15	.15	.07	.20	.20	..	..	.07	.07	..	..	..	..	..	.15
118	$1.90	d.40	.50	.20	.80	j.60	.20	.20	.20	.15	.20	.20	..	..	.07	.07	.07	.07	e.30	..	..	.25
130	$1.90	d.40	.50	.20	.65	.50	.20	k.60	.20	.15	.20	.35	..	..	.07	.07	.15	..	e.50	..	..	.25
190	$ .95	c.35	.55	.35	m.55	j.55	.20	.07	.15	.15	.20	.35	..	..	.07	.07	.07	..	..	.30	..	..
191	$ .95	c.35	.55	.35	m.55	j.55	.20	.07	.15	.07	.20	.35	.35	..	.07	.07	.07	..	..	.30	..	..
199	$1.20	c.55	.60	.40	.90	i.70	.15	g.75	.15	.35	.20	.15	.35	..	.07	..	.07	..	..	..	.07	..
199A	$1.20	c.35	.55	.35	.90	i.70	.15	g.75	.15	.35	.20	.15	.35	..	.07	..	.07	..	e.30	..	.07	..
200	$1.90	d.40	.50	.20	.90	i.70	.15	g.75	.15	.35	.20	.15	.35	..	.07	..	.07	..	e.30	..	.07	..
212	$ .95	d.40	.20	.10	.35	j.30	.15	.15	.20	.07	.20	.20	..	..	.07	.07	..	..	.20	..	..	.15
290	$1.90	d.40	.50	.20	m.55	j.55	.20	.07	.15	.15	.20	.35	..	..	.07	.07	.07	..	e.30	.30	..	..
291	$1.90	d.40	.50	.20	m.55	j.55	.20	.07	.15	.07	.20	.35	.35	..	.07	.07	.07	..	e.30	.30	..	..
312	$1.00	c.45	.35	.20	.35	j.30	.15	.15	.20	.07	.20	.20	..	..	.07	.07	..	..	..	..	..	.15
2100	$1.80	d.40	.40	.15	.90	.55	.15	.15	.15	.07	.20	.30	..	..	.07	.07	..	..	e.30	..	..	..
2300	$1.20	d.40	.40	.15	.90	.55	.15	.15	.15	.07	.20	.30	..	..	.07	.07	..	..	e.30	..	..	..



CHAIN DRILL
No. 717
(Formerly No. 17)

Yoke and nuts japanned; socket and bit shank nickeled.

AUTOMATIC, SELF-REGULATING FEED or may be fed by hand.

FOUR FEET of stout chain.

BALL BEARING.

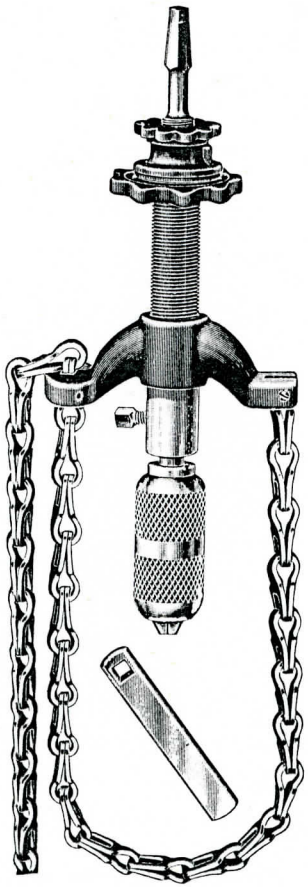
Diameter of hole in socket, $\frac{1}{2}$ inch.

Length of main spindle, $8\frac{1}{2}$ inches.

Weight, $3\frac{1}{2}$ lbs.

Price, **$2.00.**

Packed 1 in a pasteboard box.



CHAIN DRILL
No. 718
(Formerly No. 18)

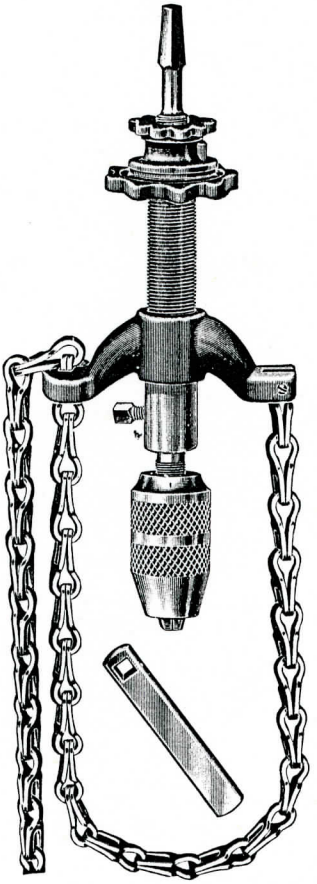
Same as Chain Drill No. 717, shown next preceding, except that **MASTER CHUCK** is added for holding **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, **BIT STOCK**, and No. 1 Morse **TAPER** shanks.

Length, with chuck inserted, $11\frac{1}{2}$ inches.

Weight, $4\frac{1}{2}$ lbs.

Price, **$3.00.**

Packed 1 in a pasteboard box.



CHAIN DRILL
No. 719
(Formerly No. 19)

Same as Chain Drill No. 717, shown preceding, excepting that **STAR** chuck is provided for holding round shanks from 0 to ½ inch in diameter.

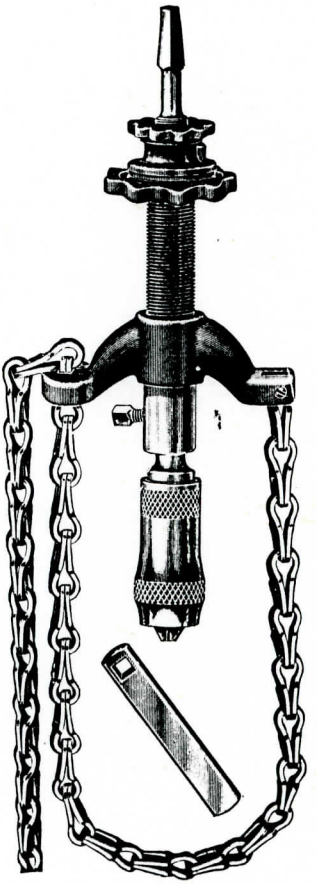
Jaws are operated by springs that are **PROTECTED FROM INJURY** and **WILL NOT GET OUT OF ORDER.**

Length, with chuck inserted, 11¾ inches.

Weight, 4½ lbs.

Price, **$4.00.**

Packed 1 in a pasteboard box.



CHAIN DRILL
No. 720
(Formerly No. 20)

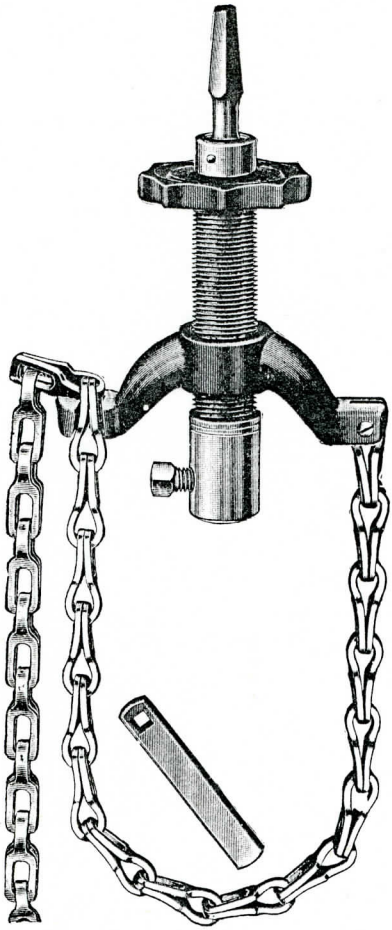
Same as Chain Drill No. 717, shown preceding, except that **BARBER IMPROVED** chuck is provided, made especially for holding bit stock shanks and many sizes of round shanks.

Length, with chuck inserted, 11½ inches.

Weight, 4½ lbs.

Price, **$2.80.**

Packed 1 in a pasteboard box.



CHAIN DRILL
No. 817

Yoke and nut japanned black; socket and bit stock polished.

FREE-ACTING HAND FEED.

FOUR FEET of stout chain.

BALL BEARING.

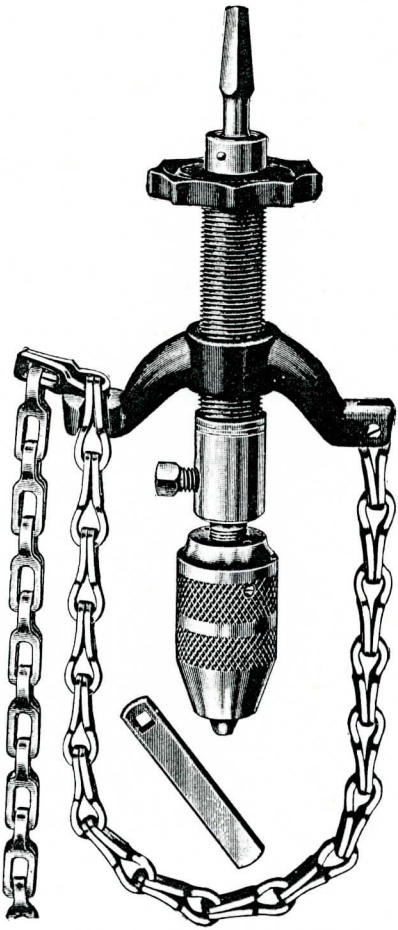
Diameter of hole in socket, $\frac{1}{2}$ inch.

Length of main spindle, $7\frac{3}{4}$ inches.

Weight, 3 lbs.

Price, **$1.70.**

Packed 1 in a pasteboard box.



CHAIN DRILL
No. 819

Same as Chain Drill No. 817, shown next preceding, excepting that **STAR** chuck is provided for holding round shanks from 0 to $\frac{1}{2}$ inch in diameter.

Jaws are operated with springs that are **PROTECTED FROM INJURY** and **WILL NOT GET OUT OF ORDER.**

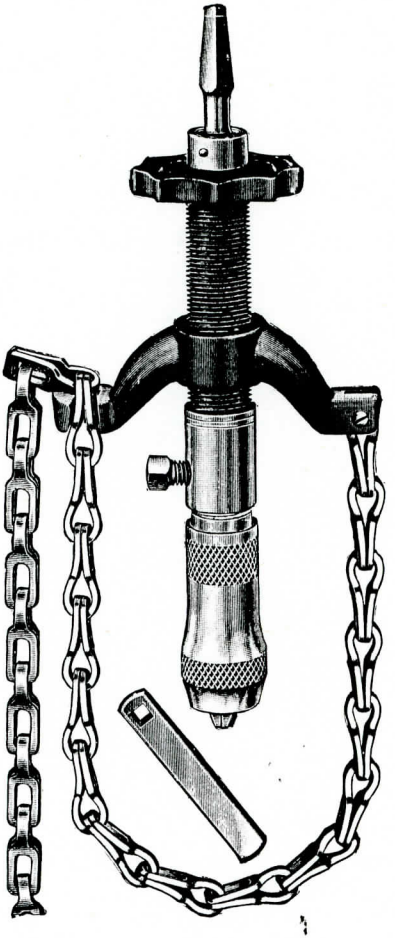
Length, with Chuck inserted, 11 inches.

Weight, 4 lbs.

Price, **$3.70.**

Packed 1 in a pasteboard box.

CHAIN DRILL
No. 820



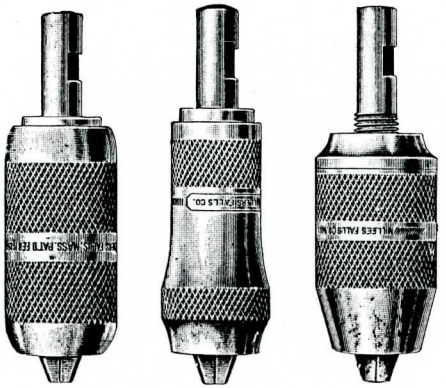
Same as Chain Drill No. 817, shown preceding, excepting that **BARBER IMPROVED** Chuck is provided, made especially for holding bit stock shanks and many sizes of round shanks.

Length, with chuck inserted, 10¾ inches.

Weight, 4 lbs.

Price, **$2.50.**

Packed 1 in a pasteboard box.

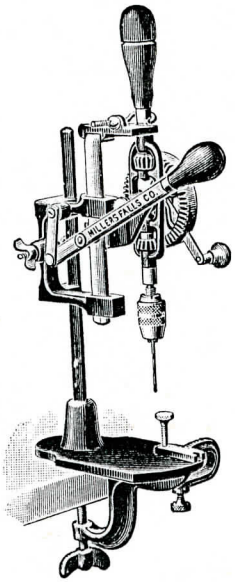


Master **Barber** **Star**

EXTRA CHUCKS FOR CHAIN DRILLS

	Price
Master, each	**$1.40**
Barber, each	**1.20**
Star, each	**2.40**

BENCH DRILL PRESS
No. 22



A simply constructed standard and fixtures to hold any of our hand drills excepting Nos. 4, 04, 4D and 7.

Steel and iron japanned.

SENSITIVE, compound lever feed.

ADJUSTABLE CLAMP to hold drill.

Height between chuck and table, when former is raised to its highest point, varying from 6½ to 7½ inches according to drill used.

Height of standard above bench, 15½ inches.

Weight (with pasteboard box), 8 lbs.

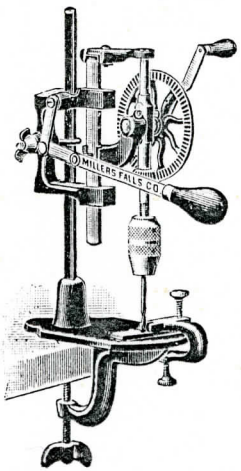
Price of frame only, **$2.25.**

Note:—For prices of drills see Hand Drills.

Packed 1 in a pasteboard box.

Note:—Drills Nos. 98, 198, 980, 981, 1980 and 1981 require a special clamp at price of 15 cents each.

BENCH DRILL PRESS
No. 23



Drilling attachment permanently affixed.

STAR chuck holding, and centering accurately, round shanks from 0 to ⅜ inch in diameter.

Distance from chuck to table, when former is raised to highest point, 6½ inches.

Otherwise the same as Bench Drill Press No. 22, shown next preceding.

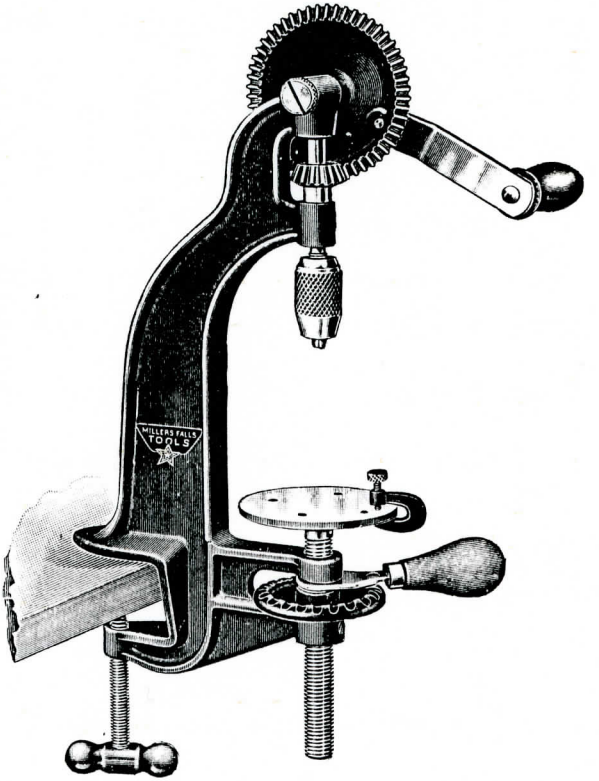
Weight (with pasteboard box), 9 lbs.

Price, **$4.50.**

Packed 1 in a pasteboard box.

BENCH DRILL PRESS

No. 208



Frame painted gray and large gear red.

Hand feed, operated by raising the table with a ratchet lever.

BALL THRUST BEARING.

Pinion of steel.

Chuck of **STAR** pattern holding round shanks from 0 to $\frac{1}{4}$ inch; and jaws operated by springs that are **PROTECTED FROM INJURY** and **WILL NOT GET OUT OF ORDER.**

Height over all, 18 inches; maximum distance from chuck to table, $4\frac{1}{2}$ inches; speed of gears, $3\frac{1}{2}$ to 1; weight, each, $7\frac{1}{2}$ pounds.

Price, each, **$5.00.**

Packed 1 in a wooden box.

BENCH DRILL PRESS

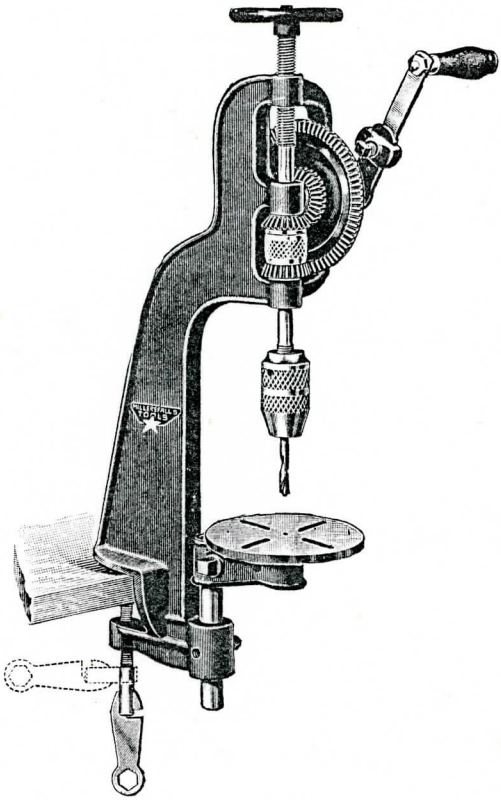
No. 209

This is the same as Drill No. 208, shown next preceding, with addition of wall or post clamp as illustrated on page 78.

Price, each, **$5.75.**

Packed 1 in a wooden box.

BENCH DRILL PRESS
No. 210

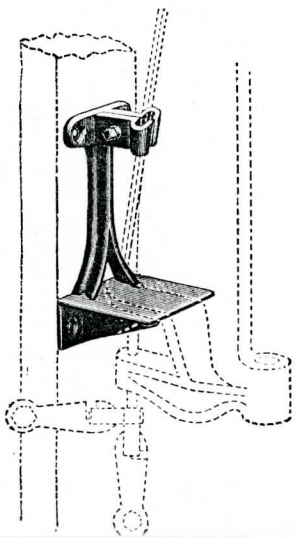


Frame finished in dark gray with red trimmings; large gear painted red.
Strong cast iron standard.
Hand feed.
INSTANTLY CHANGEABLE SPEED, 1½ to 1 and 4 to 1.
Adjustable crank, extensible from 3 to 6 inches in radius.
Table with swivel arm, may be raised within range of 2 inches.
Wrench to fit all nuts on the tool.
Chuck of **STAR** pattern, holding round shanks from 0 to ½ inch; and jaws operated by springs that are **PROTECTED FROM INJURY** and will **NOT GET OUT OF ORDER.**
Height over all, 24 inches.
Maximum distance from chuck to table, 9 inches.
Weight, boxed, 27½ lbs; net, 22 lbs.
Price, each, **$8.00.**
Packed 1 in a wooden box.

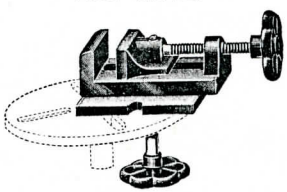
BENCH DRILL PRESS
No. 211

The same as Drill No. 210, with addition of post or wall clamp as illustrated.
Price, complete, **$9.00.**
Packed 1 in a wooden box.

WALL OR POST CLAMP



VISE No. 219



BENCH DRILL PRESS No. 213

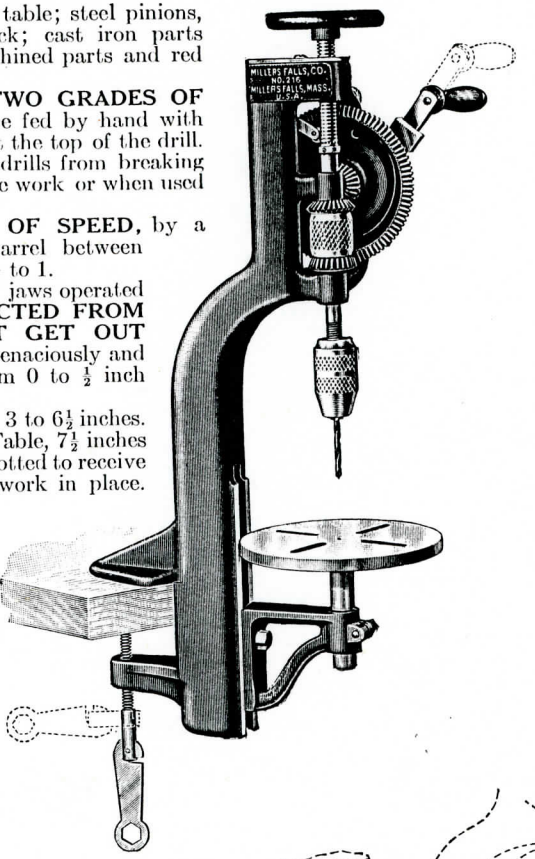
The same as Drill No. 210, with addition of vise.
Price, complete, **$9.10.**
Packed 1 in a wooden box.

BENCH DRILL PRESS No. 214

The same as No. 210, with addition of both wall or post clamp and vise.
Price, complete, **$10.10.**
Packed 1 in a wooden box.

Note: When vise only is required, this should be designated as No. 219. Price, each, **$1.10.**

BENCH DRILL PRESS No. 216



Cast iron frame, large gear and table; steel pinions, feed screw, spindle and chuck; cast iron parts painted dark gray except machined parts and red large gear.

AUTOMATIC FEED WITH TWO GRADES OF POSITIVE FEED or may be fed by hand with wheel conveniently located at the top of the drill. The positive feed prevents drills from breaking when about to go through the work or when used on thin material.

INSTANTANEOUS CHANGE OF SPEED, by a slight turn of the knurled barrel between pinions; speeded even and $3\frac{1}{2}$ to 1.

Chuck of Star pattern with three jaws operated by springs that are **PROTECTED FROM INJURY** and **WILL NOT GET OUT OF ORDER.** Chuck holds tenaciously and accurately round shanks from 0 to $\frac{1}{2}$ inch in diameter.

Adjustable crank with radius from 3 to $6\frac{1}{2}$ inches.

BALL THRUST BEARINGS. Table, $7\frac{1}{2}$ inches in diameter, machined and slotted to receive vise clamps or posts to hold work in place.

Traverse of automatic feed, $2\frac{1}{8}$ inches.

Distance from standard to drilling point, $3\frac{3}{4}$ inches.

Distance from table to chuck when bottom of table bracket is flush with the bottom of standard, 8 inches.

Vertical adjustment of table bracket, $5\frac{3}{4}$ inches.

Vertical adjustment of table in its bracket, $2\frac{1}{2}$ inches.

Height above bench, 22 inches; over all, 28 inches.

Weight, gross, 50 lbs.; net, 30 lbs.

Price, each, **$15.00.**

Packed 1 in a wooden box.

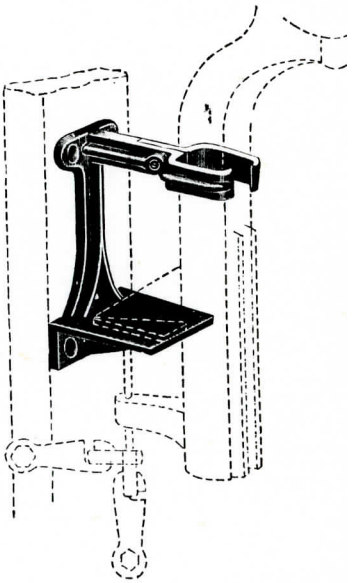
BENCH DRILL PRESS No. 218

The same as No. 216, with addition of a clamp which securely grips the main standard of the tool and is fastened with screws to a wall or post.

Weight, gross, 56 lbs.; net, 36 lbs.

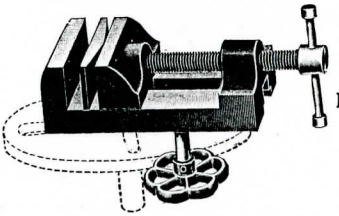
Price, each, **$17.00.**

Packed 1 in a wooden box.



VISE No. 217

For Drills Nos. 216 and 218



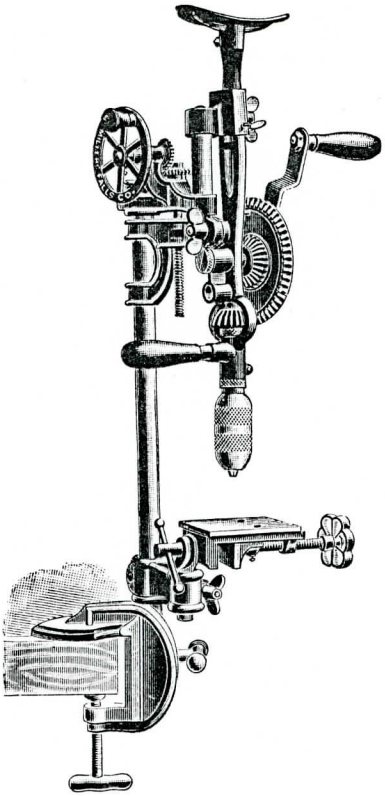
DETACHABLE SWIVEL JAW to hold work of irregular shapes. Quick clamping device to fasten vise to table of drill. Steel screw.

Jaws, base, sides, and bearing parts carefully machined. Vise opens $2\frac{5}{8}$ inches; without swivel jaw, 3 inches.

Width of jaws, $2\frac{3}{8}$ inches.

Weight, $4\frac{3}{4}$ lbs.

Price, each, **$1.75.**



UNIVERSAL HAND DRILL PRESS

No. 20

A standard and fixtures to hold any of our Breast Drills except Nos. 13, 13A, 19, 019, 29, 029, 130, 190, 191, 290 and 291.

SENSITIVE hand feed.

FEED GEARS OF STEEL.

Drill may be swiveled into many positions and clamped at varying heights, either above or below the bench.

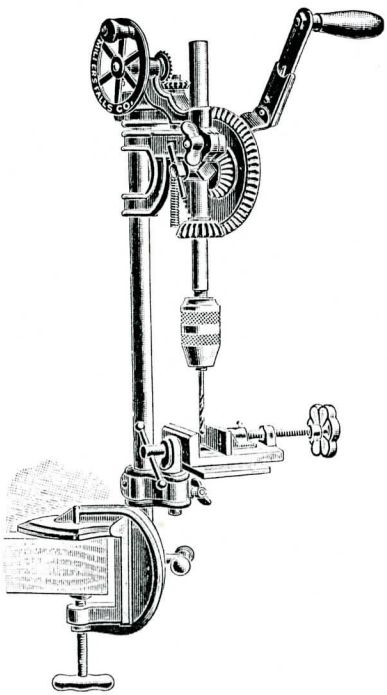
Vise swung on pin **OFF CENTER**, permitting its use in many positions; may be used horizontally, on an angle, or reversed and table turned uppermost.

Height of standard, 24 inches.

Weight, boxed, 28 lbs.; net, 19 lbs.

Price, **WITHOUT BREAST DRILL**, each, **$5.00.**

Packed 1 in a case.



UNIVERSAL HAND DRILL PRESS

No. 21

Drilling attachment permanently affixed.

CHANGEABLE SPEED from even to 3 to 1.

EXTENSIBLE CRANK with radius from 5 to 6½ inches.

STAR CHUCK for round shanks from 0 to ½ inch in diameter.

Otherwise the same as Hand Drill Press No. 20, shown next preceding.

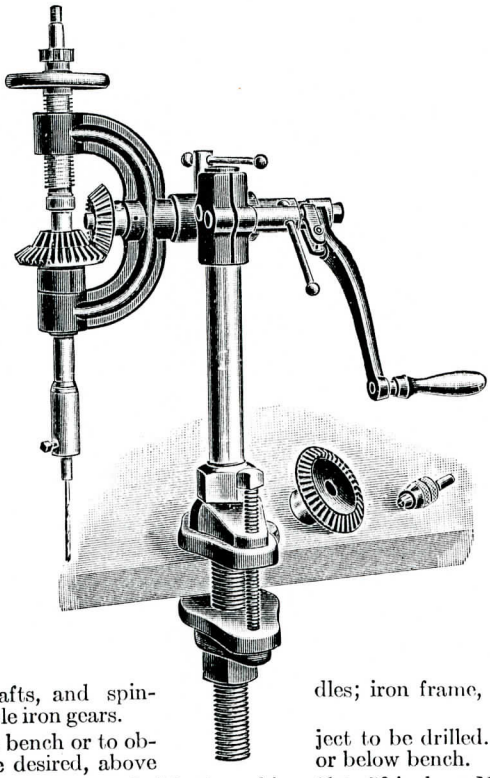
Weight, boxed, 30 lbs.; net, 21 lbs.

Price, complete, **$9.00.**

Packed 1 in a case.

For parts and their prices see page 82.

ANGULAR AND RATCHET DRILLING MACHINE



Steel standards, shafts, and spindles; iron frame, crank and bench clamp; malleable iron gears.

Attachable either to bench or to object to be drilled. Drills vertically or at any angle desired, above or below bench.

Extensible from standard outward: No. 1 machine, $4\frac{1}{2}$ to $5\frac{3}{4}$ inches; No. 2, 6 to 8 inches; and No. 3, 7 to $10\frac{1}{2}$ inches.

Hand feed. Ratchet attachment.

Socket hole in spindle for $\frac{1}{2}$-inch round shanks, but bored to order for $\frac{5}{8}$-inch without extra charge.

One $\frac{1}{4}$-inch drill to fit socket and Star chuck to hold round shanks from 0 to $\frac{1}{2}$ inch in diameter supplied with each machine, without extra charge; omitted when machine is made to order with taper socket.

No. 1, Speeded; ball bearing. Drills hole up to $\frac{5}{8}$ inch.

No. 2, With two sets of gears, making either speeded or geared back; hardened anti-friction bearings. Drills hole up to 1 inch.

No. 3, Geared back; hardened anti-friction bearings. Drills hole up to $1\frac{1}{2}$ inches.

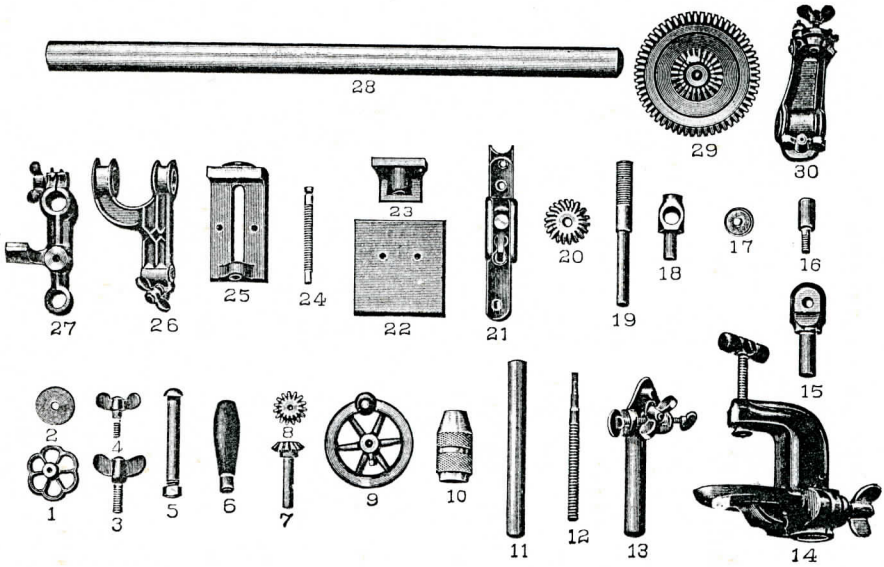
Nos.	1	2	3
Height of standard	$25\frac{1}{2}$ in.	$25\frac{1}{2}$ in.	$28\frac{1}{2}$ in.
Weight, boxed	50 lbs.	86 lbs.	135 lbs.
Weight, net	34 lbs.	68 lbs.	108 lbs.
Price	**$16.00**	**$20.00**	**$30.00**

To order, with hole for taper socket, extra, net, **$1.50.**

Note:—When ordering state size of taper wanted.

For prices of parts see page 83.

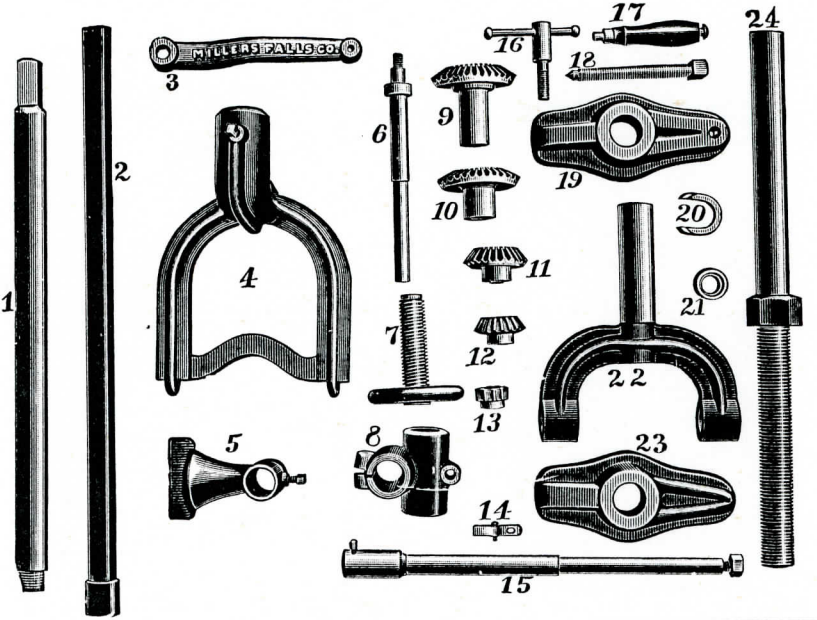
PARTS OF DRILL PRESSES NOS. 20 AND 21 AND THEIR PRICES



1	Vise Wheel	$0.15
2	Fiber Washer	.05
3	Bench Clamp Binder Screw	.20
4	Frame Thumb Screw and Vise Arm Thumb Screw	.10
5	Crank Handle Bolt and Nut	.40
6	Crank Handle	.25
7	Arbor and Gear	.20
8	Spindle Gear	.15
9	Feed Wheel, complete	.40
10	Star Chuck	2.00
11	No. 21 Attachment Frame	.35
12	Feed Screw	.25
13	No. 20 Attachment, complete	1.00
14	Bench Clamp, complete	1.20
15	Swivel	.80
16	Vise Swivel Screw	.10
17	No. 21 Attachment Gear Screw	.10
18	No. 21 Attachment Gear Stud	.25
19	No. 21 Attachment Spindle	.40
20	No. 21 Attachment Pinion	.25
21	No. 21 Attachment Crank, complete	.60
22	Vise Table	.25
23	Vise Short Jaw	.20
24	Vise Feed Screw	.15
25	Vise Long Jaw	.40
26	Lower Frame, complete	.60
27	Upper Frame, complete	.60
28	Standard	.70
29	No. 21 Attachment Large Gear	.55
30	Vise Arm, complete	.75

PARTS AND PRICES OF

ANGULAR DRILLING MACHINES AND TRACK DRILL

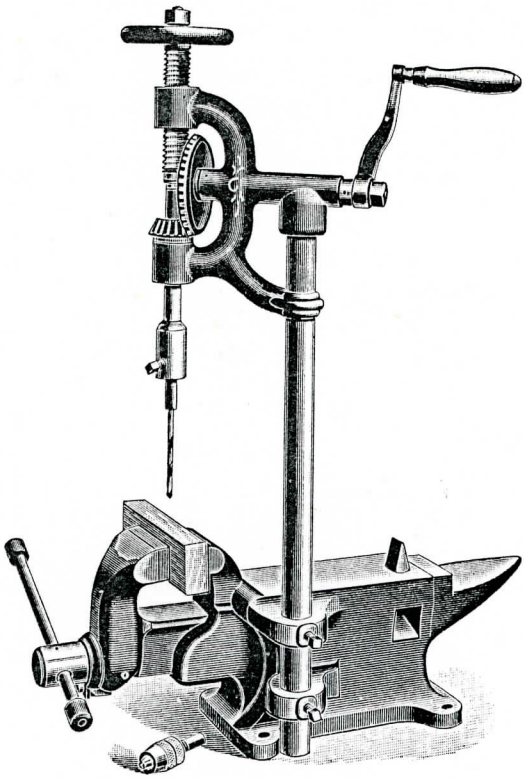


PART.	NAME OF PART.	No. 1.	No. 2.	No. 3.	No. 5.	No. 225.
1	Standard	....	....	....	$2.50	....
2	Standard Extension	....	....	....	1.90	....
3	Crank	$0.65	$0.70	$1.40	.70	$0.45
4	Track Shoe	....	....	....	2.65	....
5	Sliding Rest	....	....	....	.90	....
6	Cross Shaft	.0.80	1.25	1.75	1.25	1.00
7	Feed Wheel	1.80	1.80	2.15	1.80	1.80
8	Double Joint	1.30	1.30	2.95	2.65	....
*9	Large Gear	....	1.30	....	1.30	....
*10	Gear	....	1.30	....	1.30	....
*11	Gear	....	1.00	....	1.00	....
*12	Gear	....	1.40	....	1.40	....
13	Ratchet Gear	.40	.40	.50	.40	....
14	Ratchet Dog	.15	.15	.15	.15	....
15	Drill Spindle	1.70	2.50	4.15	2.50	1.70
16	Double Joint Screw	.80	.90	1.30	.90	....
17	Crank Handle and Bolt	.40	.40	.40	.40	.40
18	Clamp Screw	.30	.30	.35	....	....
19	Upper Clamp	.80	.95	1.45	....	....
20	Yoke	....	.15	....	.15	....
21	Ball Bearing Cup	.15	....	....	....	....
22	Fork Arm	2.50	2.60	3.40	2.60	2.90
23	Lower Clamp	.80	.95	1.45	....	....
24	Standard and Nut	3.60	4.20	6.20	....	....
*25	Large Gear	1.00	....	2.15	....	1.00
*26	Small Gear	1.00	....	1.60	....	1.00
27	Spindle Collar	.40	.50	.50	.50	.20

In ordering parts, state weight of part wanted as well as number, that it may be determined whether for Machine No. 1, 2, 3, 5, or 225.

*In ordering gears, state diameter and number of teeth.

ANVIL, VISE, AND DRILL
No. 225



(1) Drilling Attachment:

Steel standards and spindle; hand feed; socket hole $\frac{1}{2}$ inch in diameter; provided with one $\frac{1}{4}$-inch drill to fit socket hole and **EXTRA CHUCK** to hold round shanks from 0 to $\frac{1}{2}$ inch in diameter; attachment may be swung away from vise and work done below the bench; height of standard, 24 inches.

(2) Vise:

Of best material and construction; jaws $3\frac{1}{2}$ inches wide with **INSERTED STEEL FACES.**

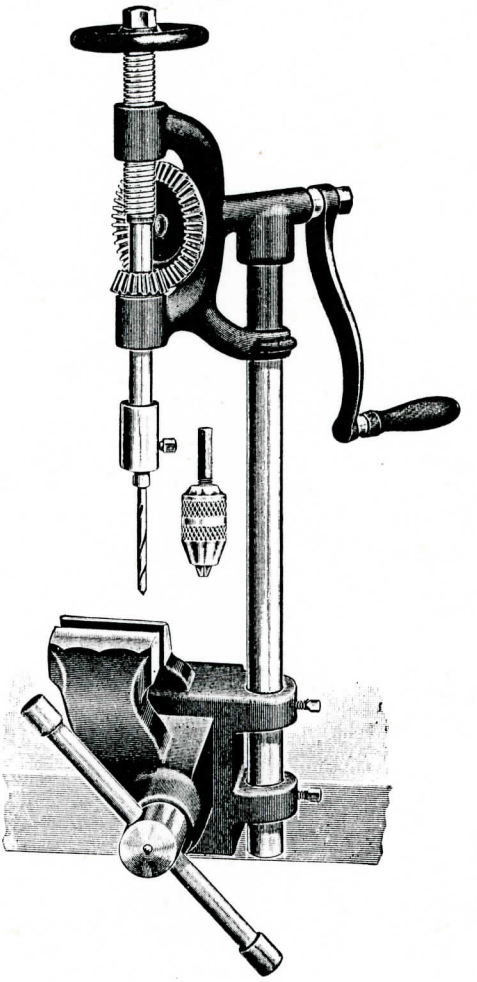
(3) Anvil:

Steel face, 4 x 8 inches; hardie provided.

	Anvil, Vise, and Drill	Anvil and Vise	Drilling Attachment
Weight, net.....	80 lbs.	60 lbs.	20 lbs.
Price.....	**$30.00**	**$12.80**	**$17.20**

Packed 1 in a wooden box.

VISE AND DRILL
No. 226

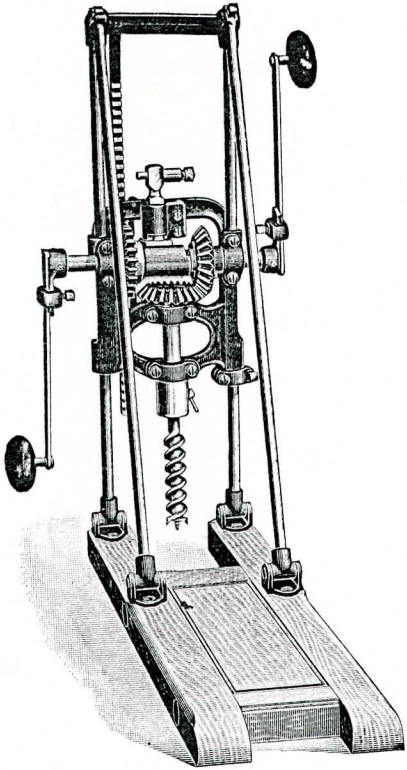


Similar to that shown in connection with Anvil, Vise, and Drill next preceding, except that vise is offset to give clearance for drilling.

	Weight	Price
Offset Vise and Drill	61 lbs.	**$28.00**
Offset Vise only	41 lbs.	**10.50**
Drilling Attachment	20 lbs.	**17.50**

Packed 1 in a wooden box.

MILLERS FALLS BORING MACHINE
No. 145



Wood bottom board; upright and angle rods, spindle and cranks made of steel.

Bores vertically or **AT ANY ANGLE** from the vertical **WITHIN AN ARC** of 50°.

Depth of hole regulated by stop.

Auger removed from hole by pushing a latch and continuing revolution of cranks in same direction as when boring.

Frame locked in topmost **SUSPENSION AUTOMATICALLY;** released by pressure upon a thumb latch.

ADJUSTABLE CRANKS regulating speed and power.

Regularly made to bore 12 inches but made to order for greater depths at small additional charge.

Height, 25 inches. Weight, boxed, 45 lbs.; net, 28 lbs.

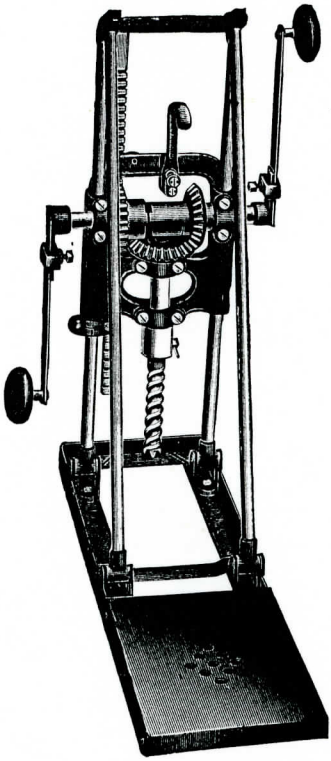
Price, without augers, **$9.25.**

Packed 1 in a wooden box.

Augers in sets.....	18	23	41 quarters.
Price, per set.....	**$4.50**	**$5.50**	**$10.25**
Sizes.....	1, 1½, 2 in.	1, 1¼, 1½, 2 in.	⅛, ⅝, ¾, ⅞, 1, 1¼, 1½, 1¾, 2 in.

BORING MACHINE

No. 146



★ NEW TOOL ★

Base of **STEEL TO PREVENT WARPING,** upright and angle rods, spindle and cranks also of **STEEL.**

Bores vertically or **AT ANY ANGLE** from the vertical **WITHIN AN ARC OF 50°.**

Depth of hole regulated by adjustable stop.

Auger removed from hole by a few backward revolutions of cranks to loosen worm of bit, pressure with cranks to the left, automatically engaging a clutch, and forward revolutions of the cranks.

Frame locked in topmost **SUSPENSION AUTOMATICALLY;** released by pressure upon a thumb latch.

ADJUSTABLE CRANKS regulating speed and power.

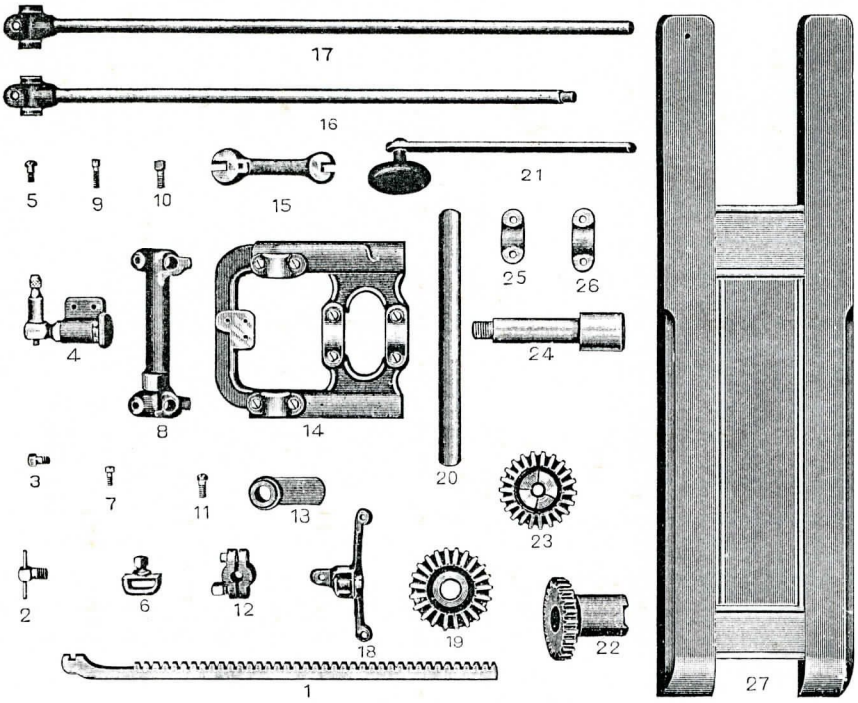
Regularly made to bore 12 inches but made to order for greater depths at small additional charge.

Height, 25½ inches. Weight, boxed, 49 lbs.; net, 31 lbs.

Price, without augers, **$9.25.**

Packed 1 in a wooden box.

PARTS OF BORING MACHINE AND THEIR PRICES



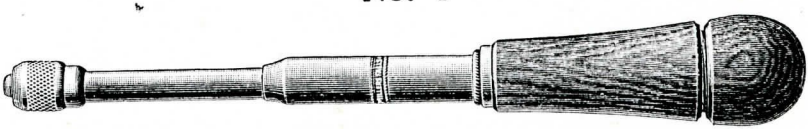
1	Rack	$0.45
2	Chuck Set Screw	.10
3	Short Rod Set Screw	.05
4	Catch, complete	.85
5	Spider Screw	.05
6	Handle Clamp, complete	.15
7	Arbor Cap Screw	.05
8	Top Cap	.50
9	Catch Screw and Rack Screw	.05
10	Long Rod Set Screw	.05
11	Spindle Cap Screw	.05
12	Stop, complete	.30
13	Crank Casting	.20
14	Frame	1.75
15	Wrench	.10
16	Short Rod, complete	.30
17	Long Rod, complete	.25
18	Spider, complete	.30
19	Spindle Gear	.30
20	Arbor	.15
21	Adjustable Crank, complete	.40
22	Rack Gear	.30
23	Arbor Gear	.30
24	Chuck Spindle	.75
25	Arbor Cap	.15
26	Spindle Cap	.15
27	Table	1.40

AUTOMATIC BORING TOOLS

No. 3

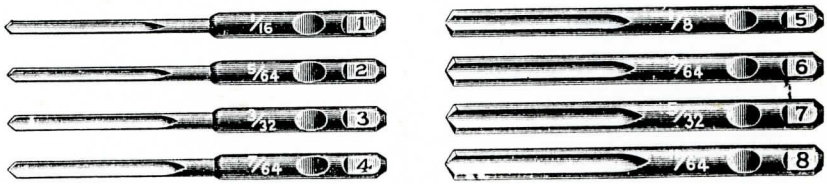
All metal, **NICKELED.**
Eight drill points from $\frac{1}{16}$ to $\frac{11}{64}$ inch in diameter in wooden box.
Chuck with **POSITIVE GRIP.**
Length, 10 inches. Weight, per dozen (with pasteboard boxes), $7\frac{1}{2}$ lbs.
Price, per dozen, **$14.00.**
Packed 1 in a pasteboard box.

No. 4

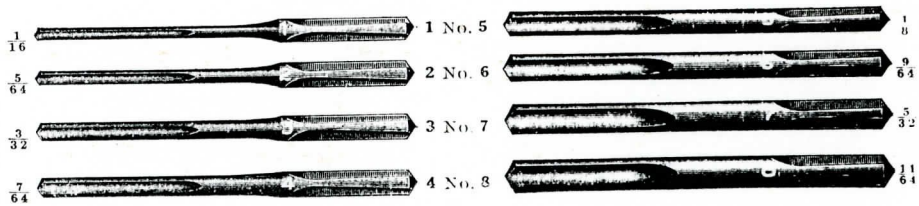


Rare tropical wood handle; metal parts **NICKELED.**
Eight drill points from $\frac{1}{16}$ to $\frac{11}{64}$ inch in diameter, each in a **SEPARATE CELL** in end of handle.
Chuck with **POSITIVE GRIP.**
Length, 11 inches. Weight, per dozen (with pasteboard boxes), $7\frac{1}{2}$ lbs.
Price, per dozen, **$16.00.**
Packed 1 in a pasteboard box.

BORING TOOL POINTS, NEW PATTERN

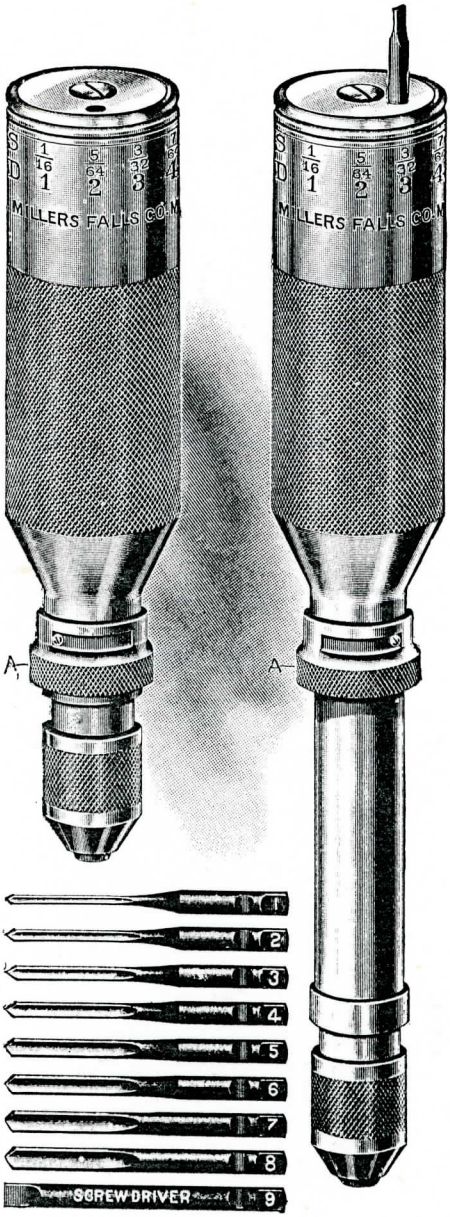


BORING TOOL POINTS; OLD PATTERN WITH FLUTED SHANKS



Price, per set (8 points), **$0.48**; per dozen, **$0.72.**
Packed 1 set or 1 dozen in a wooden box.

AUTOMATIC STAR POCKET BORER
No. 8



Handsomely knurled and **NICKELED** steel.

May be **COMPRESSED** into convenient **SIZE FOR THE POCKET.**

MAGAZINE HANDLE, containing 8 **DRILL POINTS,** ranging from $\frac{1}{16}$ to $\frac{11}{64}$ inch in diameter, and a **SCREW DRIVER BIT.**

Device for releasing a bit from handle **WITHOUT DISTURBING THE OTHERS.**

Screw driver bit to be used when tool is compressed.

Chuck with **POSITIVE GRIP.**

Length, extended, $7\frac{1}{4}$ inches; compressed, $4\frac{7}{8}$ inches.

Weight, per dozen (with pasteboard boxes), $8\frac{1}{4}$ lbs.

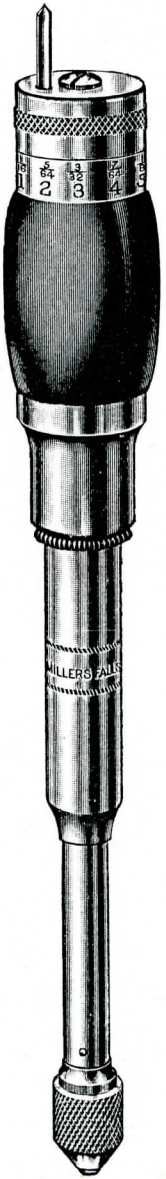
Price, per dozen, **$23.00.**

Packed 1 in a pasteboard box.

★ NEW TOOL ★

★ NEW TOOL ★

AUTOMATIC BORING TOOLS



No. 79

No. 79

Stained hardwood handle; metal parts **NICKELED.**

Eight drill points from $\frac{1}{16}$ to $\frac{11}{64}$ inch in diameter, each in a **SEPARATE CELL** in handle and **RELEASED WITHOUT DISTURBING OTHERS.**

Number and size of each point stamped on the handle over the corresponding cell.

Handle of peculiarly convenient grip for the hand.

Chuck with **POSITIVE GRIP.**

Length, $10\frac{1}{2}$ inches.

Weight, per dozen, 8 lbs.

Price, per dozen, **$16.00.**

Packed 1 in a pasteboard box.

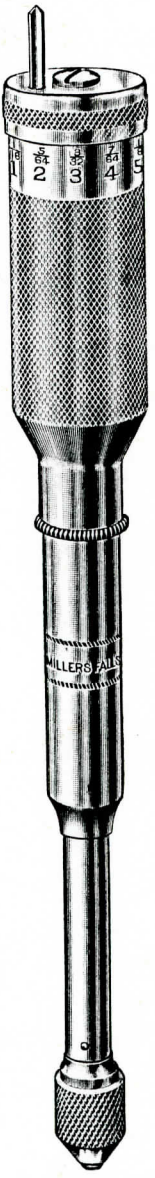
No. 180

The same as No. 79, except that it is **ALL STEEL** and with handsomely knurled and nickeled handle.

Weight, per dozen, 8 lbs.

Price, per dozen, **$19.75.**

Packed 1 in a pasteboard box.

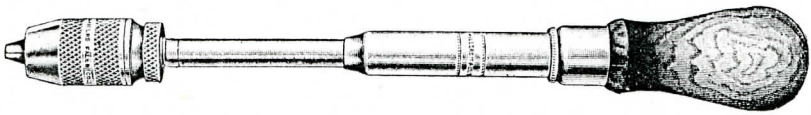


No. 180

NEW TOOL

AUTOMATIC BORING TOOL

No. 45



Rare tropical wood handle; metal parts **POLISHED** and **NICKELED.**

Chuck holding round shank drill bits from 0 to $\frac{1}{4}$ inch in diameter.

A knurled check nut immediately back of the chuck prevents the latter from working loose.

Length, $11\frac{3}{4}$ inches.

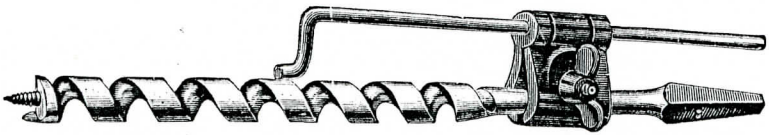
Weight, per dozen (with pasteboard boxes), $9\frac{1}{2}$ lbs.

Price, per dozen, **$20.00.**

Packed 1 in a pasteboard box.

BIT GAUGE

No. 1



Clamps to auger bit of any size.

Tightens on bit and gauge spindle simultaneously.

Lengths, $4\frac{3}{4}$ inches.

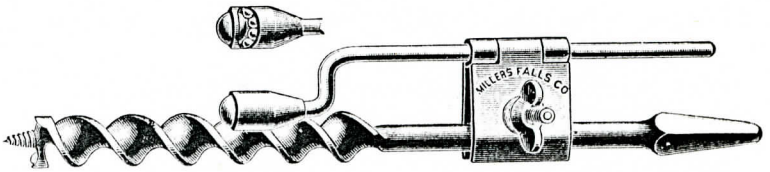
Weight, per dozen, 2 lbs.

Price, per dozen, **$2.00.**

Packed $\frac{1}{2}$ dozen in a pasteboard box.

ANTI-FRICTION BIT GAUGE

No. 2



POLISHED AND NICKELED.

Clamps to auger bit of any size.

Tightens on bit and gauge spindle at same time.

Ball in end, running on six smaller balls, to **PREVENT DEFACING DELICATE MATERIAL** when in contact with gauge.

Length, $5\frac{3}{4}$ inches.

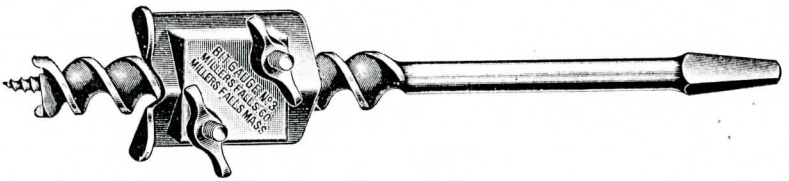
Weight, per dozen, $1\frac{3}{4}$ lbs.

Price, per dozen, **$5.00.**

Packed $\frac{1}{2}$ dozen in a pasteboard box.

BIT GAUGE

No. 36



NICKEL PLATED.

A simple device to be clamped at any point on auger bit.

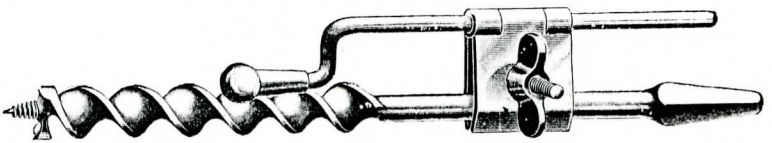
Contact with work by **TWO SMOOTH SHOES,** so made as not to mar material.

Weight, per dozen, 2 lbs.

Price, per dozen, **$4.50.**

Packed $\frac{1}{2}$ dozen in a pasteboard box.

BIT GAUGE, No. 37



NICKEL PLATED.

Clamps to auger bit of any size.

Tightens on bit and gauge simultaneously.

Contact with work by smooth, spherical foot to **PREVENT DEFACING DELICATE MATERIAL.**

Length, $5\frac{1}{2}$ inches.

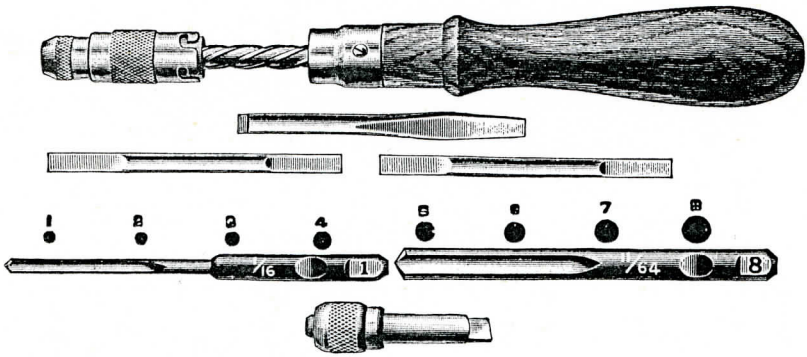
Weight, per dozen, $1\frac{5}{8}$ lbs.

Price, per dozen, **$3.00.**

Packed $\frac{1}{2}$ dozen in a pasteboard box.

AUTOMATIC SCREW DRIVERS

Nos. 11 and 12



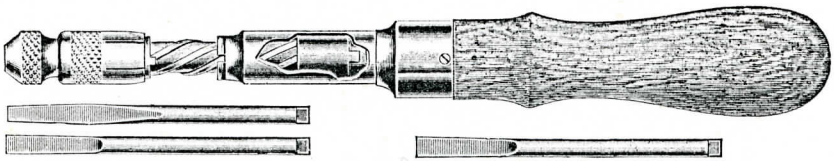
Rare tropical wood handle; metal parts **NICKELED.**
REVOLVING SLEEVE to be grasped between thumb and fingers to steady the tool.
LOCKING DEVICE to hold bits in chuck.
Spiral may be locked rigid and tool used as an ordinary screw driver.
Three screw driver bits, four inches long, two with double ends, provided, to fit screws of varying sizes.
Length, extended, 15 inches.
Length, closed, 9½ inches.
No. 11 has 3 screw driver bits.
No. 12 has 3 screw driver bits, drill chuck, and 8 drill points.

Nos	11	12
Weight, per dozen (with pasteboard boxes)	10 lbs.	12 lbs.
Price, per dozen	**$17.00**	**$23.50**

Packed 1 in a pasteboard box.

AUTOMATIC SCREW DRIVERS

Nos. 20 and 21



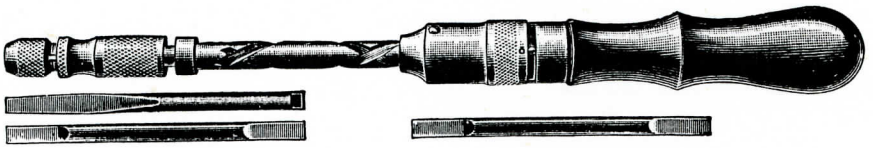
Stained hardwood handle; metal parts **NICKELED.**
REVOLVING SLEEVE to be grasped between thumb and fingers to steady the tool.
LOCKING DEVICE to hold bits in chuck.
Tool may be used as an ordinary screw driver by locking the spiral.
Three bits, four inches long, to fit screws of varying sizes.

Nos	20	21
Length, extended	13 in.	15 in.
Length, closed	9¼ in.	10 in.
Weight, per dozen (with pasteboard boxes)	7½ lbs.	10 lbs.
Price, per dozen	**$14.00**	**$14.50**

Packed 1 in a pasteboard box.

IN AND OUT SCREW DRIVER

No. 41



Stained hardwood handle; exposed metal parts **NICKELED.**

Two spiral grooves on plunger, permitting chuck to be **REVOLVED EITHER TO RIGHT OR LEFT;** grooves, being of different depths, **AVOID WEAR AT POINTS OF INTERSECTION AND SO PITCHED** as to make the tool a powerful one.

Spiral may be locked to make ordinary screw driver of **DIFFERENT LENGTHS.**

LOCKING DEVICE to hold bits in chuck.

Three screw driver bits, two with double end, supplied, to fit screws of varying sizes.

Length, extended, $17\frac{3}{4}$ inches.

Length, closed, 12 inches.

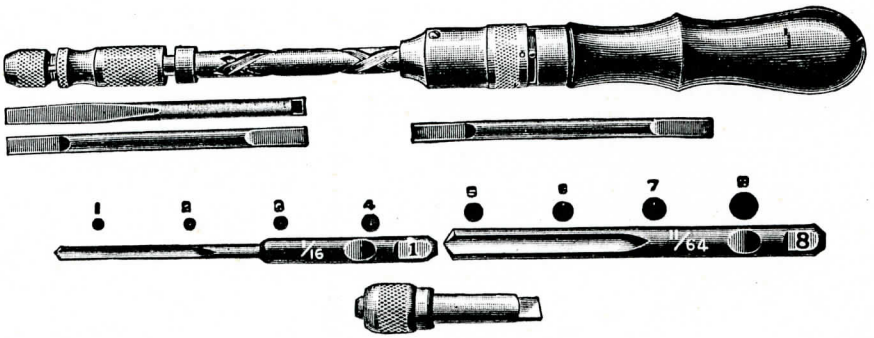
Weight, per dozen (with pasteboard boxes), 15 lbs.

Price, per dozen, **$23.00.**

Packed 1 in a pasteboard box.

IN AND OUT SCREW DRIVER

No. 42



The same as Screw Driver No. 41, shown next preceding, except that drill chuck and eight wood boring points, ranging from $\frac{1}{16}$ to $\frac{11}{64}$ inch in diameter, are supplied.

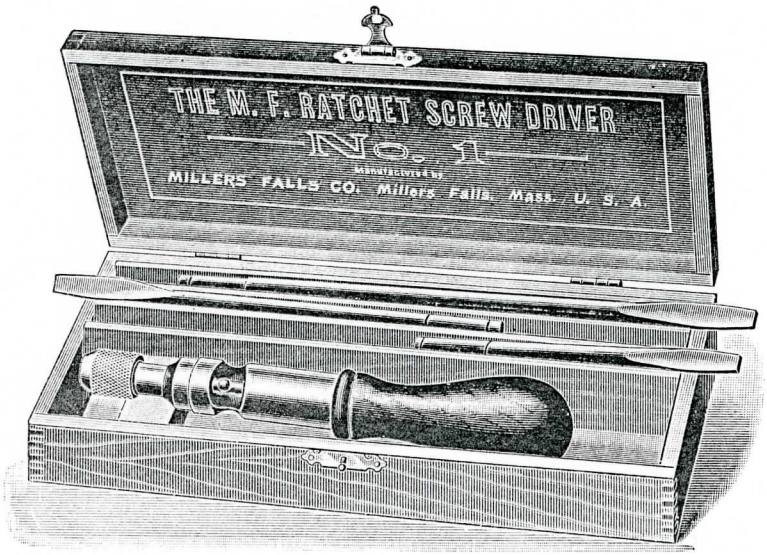
Weight, per dozen (with pasteboard boxes), 17 lbs.

Price, per dozen, **$29.50.**

Packed 1 in a pasteboard box.

RATCHET SCREW DRIVER

No. 1



Rare tropical wood handle; metal parts, including bits, **NICKELED.**
Ratchets in either direction or may be used as an ordinary screw driver.
Three bits, 5, 7, and 9 inches long respectively, to fit screws of different sizes.
Length of handle, 7 inches.
Weight, per dozen sets (with wooden and pasteboard boxes), 19 lbs.
Price, per dozen sets, **$23.50.**
Packed each set in a substantial wooden box within a pasteboard carton.

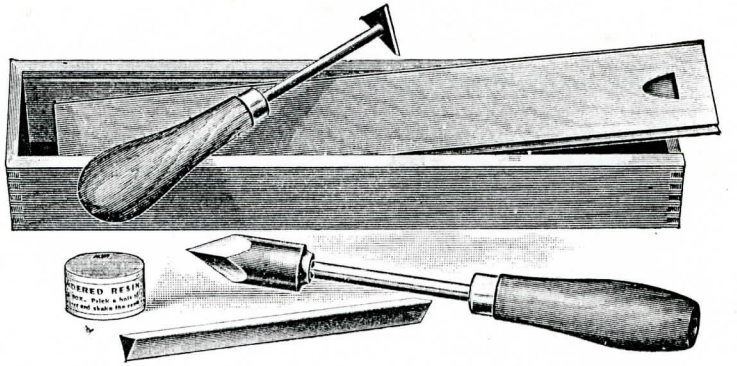
HAND FORGED ROUND SCREW DRIVER BIT

Nos	1	2
Length	5 in.	8 in.
Weight, per dozen	$1\frac{3}{4}$ lbs.	$2\frac{1}{2}$ lbs.
Price, per dozen	**$2.40**	**$2.60**

Packed 1 dozen in a pasteboard box.

THE GEM SOLDERING SET

No. 1



A household implement.

Comprises one **BAR OF SOLDER**, one **BOX OF RESIN**, a **SCRAPER**, and a **SOLDERING COPPER.**

Copper is of **SUFFICIENT SIZE TO RETAIN HEAT.**

May be used as an ordinary soldering copper or, when attached to a gas burner, the gas passes **THROUGH A HOLLOW TUBE WITHIN THE LENGTH OF THE HANDLE** and is ignited at emission holes immediately beneath the copper.

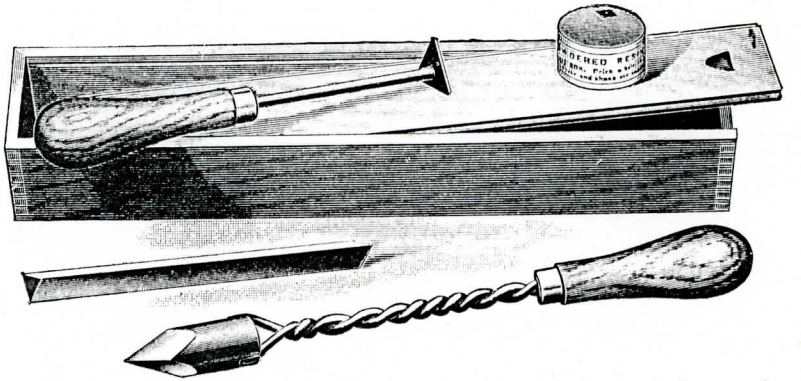
Weight, per dozen sets (with wooden boxes), 12½ lbs.

Price, per dozen sets, **$10.50.**

Packed 1 set in a wooden box.

THE GEM SOLDERING SET

No. 2



The same as Soldering Set No. 1, shown next preceding, except that it is not adapted to a gas burner and is not quite so highly finished.

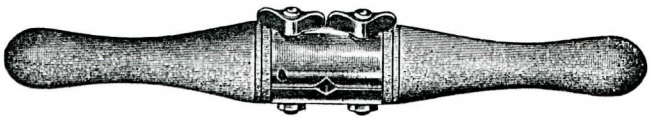
Weight, per dozen sets (with wooden boxes), 11½ lbs.

Price, per dozen sets, **$7.00.**

Packed 1 set in a wooden box.

PRATT'S PATENT AUGER HANDLE

Nos. 1 and 2



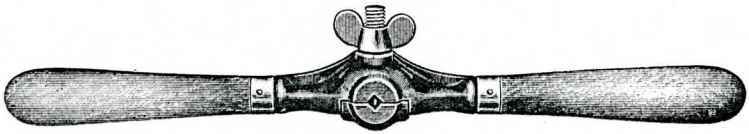
Stout ash wood handle.
Steel band, three inches long, split longitudinally, opens to admit all sizes and shapes of auger shanks, excepting largest sizes of ship augers.
Centers augers correctly.

Nos.	1	2
Length	14 in.	17 in.
Weight, per dozen	16 lbs.	18 lbs.
Price, per dozen	**$7.60**	**$8.00**

Packed ½ dozen in a pasteboard box.

ROGERS' AUGER HANDLE

No. 3



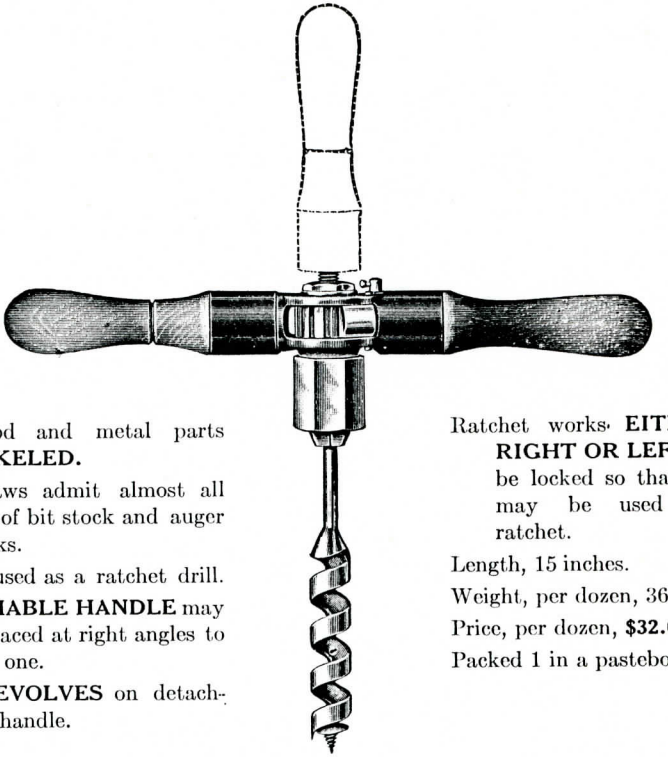
Body casting malleable iron; screw steel; handles ash.
A light, strong handle.
Length, 16 inches.
Weight, per dozen, 17 lbs.
Price, per dozen, **$8.00.**
Packed ¼ dozen in a pasteboard box.

ROGERS' AUGER HANDLE

No. 03

Excepting longer clamp, operated by two screws, the same as Auger Handle No. 3, shown next preceding.
Length, 16 inches.
Weight, per dozen, 18 lbs.
Price, per dozen, **$7.00.**
Packed ¼ dozen in a pasteboard box.

PRATT'S RATCHET AUGER HANDLE
No. 4



Ash wood and metal parts **NICKELED.**

Chuck jaws admit almost all sizes of bit stock and auger shanks.

May be used as a ratchet drill.

DETACHABLE HANDLE may be placed at right angles to fixed one.

Wood **REVOLVES** on detachable handle.

Ratchet works **EITHER TO RIGHT OR LEFT** or may be locked so that the tool may be used without ratchet.

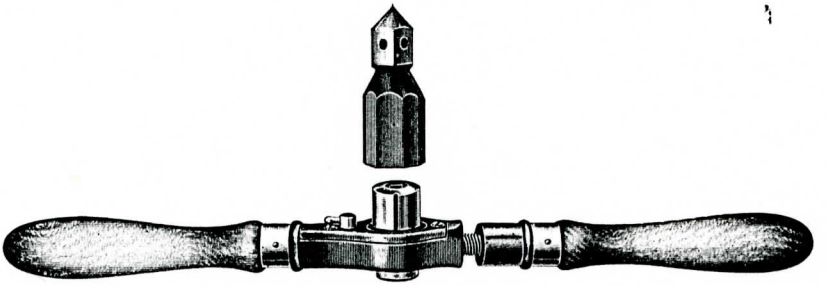
Length, 15 inches.

Weight, per dozen, 36 lbs.

Price, per dozen, **$32.00.**

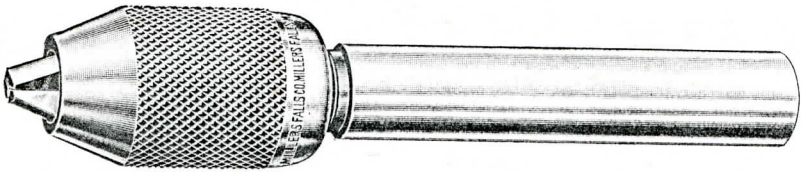
Packed 1 in a pasteboard box.

GUNN'S RATCHET AUGER HANDLE
No. 5

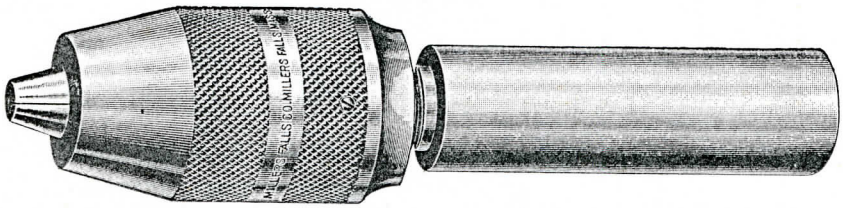


Malleable iron, steel, and second growth ash wood.
Holds and centers auger shanks of all ordinary sizes.
One handle **DETACHABLE.**
Ratchet works **EITHER TO RIGHT OR LEFT** or may be locked so tool may be used as if without ratchet.
Attachment, as shown in illustration, provided to **CONVERT TOOL INTO A RATCHET DRILL.**
Length, 16½ inches.
Weight, per dozen, 26 lbs.
Price, per dozen, **$22.00.**
Packed 1 in a pasteboard box.

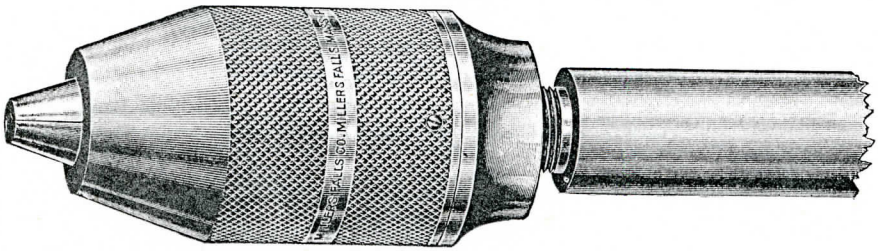
STAR CHUCK
No. 4



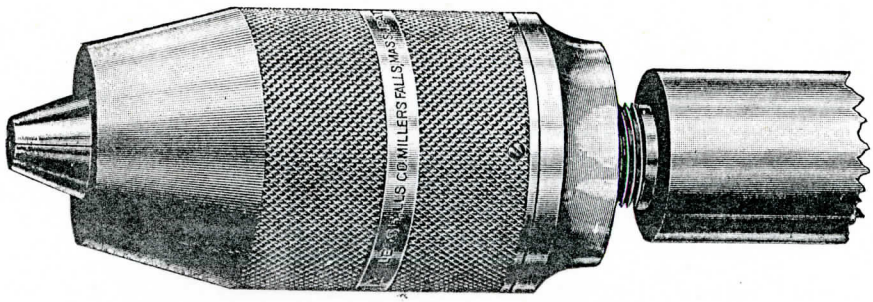
STAR CHUCK
No. 5



STAR CHUCK
No. 6



STAR CHUCK
No. 7



STAR CHUCKS
Nos. 4, 5, 6, and 7

Substantial chucks, handsomely polished and with machinist's finish.

Three jaws, carefully adjusted in a socket, opening with a spring and closing with pressure from spindle. Springs are **PROTECTED FROM INJURY** and **WILL NOT GET OUT OF ORDER.**

GRIP TENACIOUSLY, and **CENTER ACCURATELY,** round shanks.

Nos.	4	5	6	7
Capacity	0–$\frac{3}{16}$ in.	0–$\frac{1}{4}$ in.	0–$\frac{3}{8}$ in.	0–$\frac{1}{2}$ in.
Outside diameter of chuck	$\frac{13}{16}$ in.	1 in.	$1\frac{1}{4}$ in.	$1\frac{1}{2}$ in.
Dimensions of shank	$1\frac{1}{2}$x$\frac{1}{2}$ in.	$1\frac{1}{2}$x$\frac{1}{2}$ in.	$1\frac{1}{2}$x$\frac{1}{2}$ in.	$1\frac{1}{2}$x$\frac{1}{2}$ in.
Weight	6 oz.	7 oz.	10 oz.	17 oz.
Price	**$1.15**	**$1.25**	**$2.00**	**$2.50**

Packed 1 in a pasteboard box.

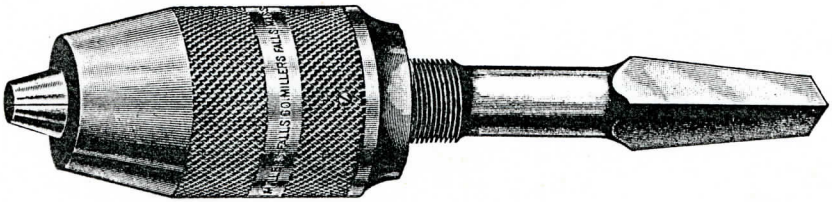
CHUCKS FURNISHED TO ORDER WITH SHANKS AS FOLLOWS WITHOUT EXTRA CHARGE:

Nos.	5	6	7
Diameter of shank	$\frac{41}{64}$ in.	$\frac{41}{64}$ in.	$\frac{41}{64}$ or $\frac{7}{8}$ in.

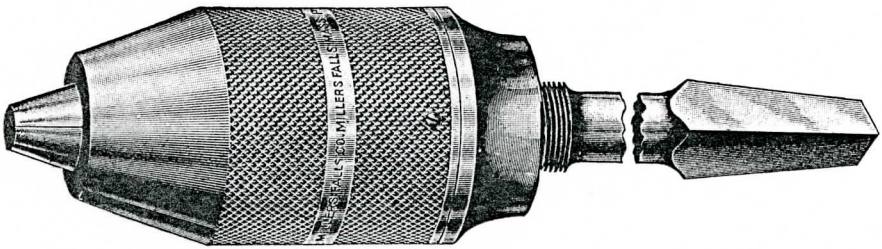
Special shanks, straight or taper, at additional charge of 50 cents each.

When ordering taper shanks, take care to state exact taper wanted.

STAR CHUCK
No. 15



STAR CHUCK
No. 16



STAR CHUCK
No. 17

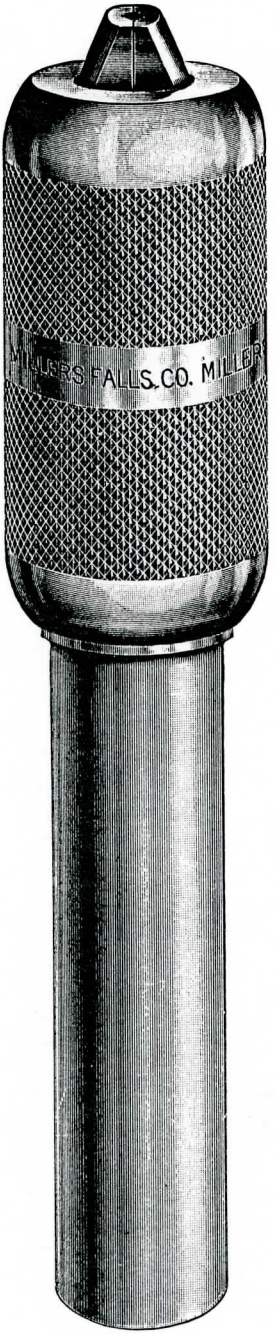
The same as Star Chucks Nos. 5, 6, and 7, shown next preceding, except that shanks are of the bit stock pattern, permitting chucks to be used in bit braces, breast drills, and other tools.

Nos.	15	16	17
Capacity	0–$\frac{1}{4}$ in.	0–$\frac{3}{8}$ in.	0–$\frac{1}{2}$ in.
Outside diameter of chuck	1 in.	1$\frac{1}{4}$ in.	1$\frac{1}{2}$ in.
Length of shank	2 in.	2$\frac{1}{4}$ in.	2$\frac{1}{4}$ in.
Weight	6 oz.	10 oz.	17 oz.
Price	**$2.00**	**$2.50**	**$3.00**

Packed 1 in a pasteboard box.

MASTER LATHE CHUCK

No. 150



No. 150

NICKELED chuck; solid steel shank. Chuck holds, and centers with reasonable accuracy, **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, **BIT STOCK** and No. 1 Morse **TAPER** shanks.
Whole length, $7\frac{1}{2}$ inches.
Outside diameter of chuck, $1\frac{1}{2}$ inches.
Dimensions of shank, $\frac{15}{16}$x4 inches.
Weight, 29 oz.
Price, **$1.80.**
Packed 1 in a pasteboard box.
CHUCKS FURNISHED TO ORDER WITH SHANKS $\frac{1}{2}$ OR $\frac{41}{64}$ INCH IN DIAMETER WITHOUT EXTRA CHARGE.
Special shanks, straight or taper, to order at **$0.50** extra each.

BARBER LATHE CHUCK

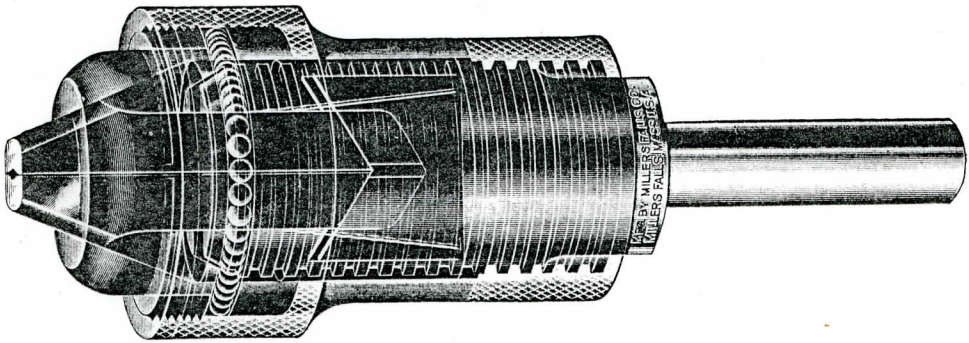
No. 151

The same as Lathe Chuck No. 150, shown next preceding, except that chuck is of the **BARBER IMPROVED** pattern, made especially for bit stock and many sizes of round shanks.
Whole length, $7\frac{1}{2}$ inches.
Outside diameter of chuck, $1\frac{5}{16}$ inches.
Dimensions of shank, $\frac{15}{16}$x4 inches.
Weight, 26 oz.
Price, **$1.50.**
Packed 1 in a pasteboard box.
CHUCKS FURNISHED TO ORDER WITH SHANKS $\frac{1}{2}$ OR $\frac{41}{64}$ INCH IN DIAMETER WITHOUT EXTRA CHARGE.
Special shanks, straight or taper, to order at **$0.50** extra each.

No. 151

★ NEW TOOL ★

LION LATHE CHUCK
No. 152



NICKELED chuck with solid steel shank.

BALL BEARINGS for ease in tightening on and releasing shanks of bits and for giving a **VISE-LIKE GRIP.**

Chuck holds and centers with reasonable accuracy **ROUND** shanks from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter, **BIT STOCK** and No. 1 Morse **TAPER** shanks.

Whole length, $5\frac{3}{4}$ inches.

Outside diameter of chuck, $1\frac{1}{4}$ inches.

Dimensions of shank, $2\frac{1}{2}$x$\frac{1}{2}$ inches.

Weight, 20 oz.

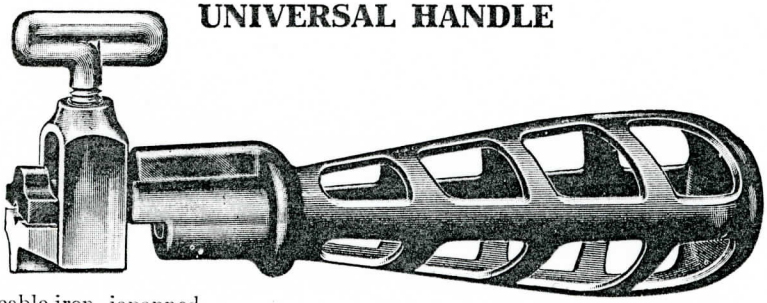
Price, each, **$2.10.**

Packed 1 in a pasteboard box.

CHUCKS FURNISHED TO ORDER WITH SHANKS $\frac{1}{2}$ OR $\frac{41}{64}$ INCH IN DIAMETER WITHOUT EXTRA CHARGE.

Special shanks, straight or taper, to order at **$0.50** extra each.

UNIVERSAL HANDLE



Malleable iron, japanned.

Holds, perfectly, files with tangs of all sizes and shapes from a 14-inch mill file to the smallest size in use, also a variety of shanks of different shapes and sizes not exceeding $\frac{3}{8}$-inch square or flat.

Serves many of the purposes of a hand vise.

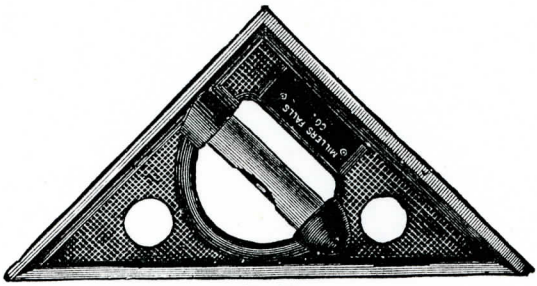
Length, $5\frac{1}{4}$ inches.

Weight, per dozen, $4\frac{1}{4}$ lbs.

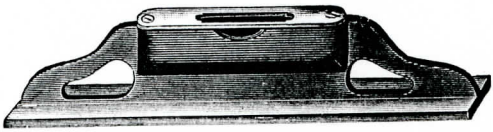
Price, per dozen, **$1.50.**

Packed $\frac{1}{2}$ dozen in a pasteboard box.

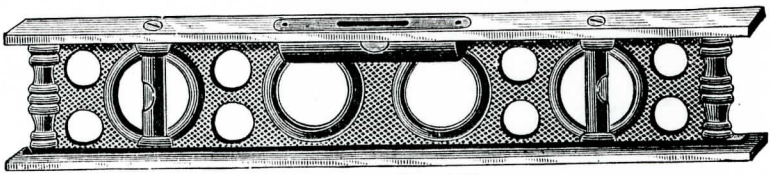
PATENT IRON LEVELS



No. 20



Nos. 21 and 22



Nos. 23, 24, 25, and 26

LEVEL SURFACES CAREFULLY TRUED AND POLISHED; other parts enameled black.

SPIRIT TUBES INSERTED WITH UTMOST ACCURACY and protected with a nickeled plate.

Openwork construction with the **ADVANTAGE OF LIGHTNESS.**

MORE COMPACT, MORE DURABLE, AND LESS EXPENSIVE THAN THE BETTER CLASS OF WOODEN LEVELS.

Nos.	20	21	22	23	24	25	26
Length	4 in.	4 in.	5 in.	6 in.	12 in.	18 in.	24 in.
Weight, per dozen (with pasteboard boxes)	8½ lbs.	4 lbs.	4½ lbs.	11 lbs.	26 lbs.	37 lbs.	55 lbs.
Price, per dozen	**$10.40**	**$7.00**	**$8.25**	**$12.00**	**$18.00**	**$21.50**	**$24.75**

No. 20 is a right-angle triangle level.

Nos. 21 and 22 are bench levels.

Other numbers are double plumb levels.

No. 20 packed 2 in a pasteboard box.

Other numbers packed 1 in a pasteboard box.

Ground glasses furnished at additional cost of **$0.50** per glass.

STAR HACK SAWS

THROUGHOUT THE WORLD THE STANDARD OF HACK SAWS.

TEMPERED TO THE UTMOST WITHOUT INJURING THE TOUGHNESS AND TOUGHENED TO THE UTMOST POSSIBLE WITHOUT INJURING THE TEMPER.

Made from the **HIGHEST GRADE OF STEEL** according to our **SPECIAL FORMULA.**

PERFECTLY TOOTHED with **PATENT SET; SCIENTIFICALLY DESIGNED** and **ABSOLUTELY CORRECT** as to **WIDTH, THICKNESS,** and **NUMBER OF TEETH** to the inch.

All saws of **UNIFORM EXCELLENCE.**

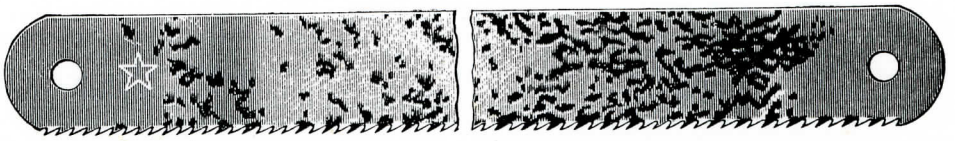
Made with 14 and 24 teeth to the inch. Blades with 14 teeth to the inch are **ADAPTED TO ALL KINDS OF HACK SAW WORK AND MATERIALS** except thin stock and tubing with thin walls, for which blades with 24 teeth should be used. **BLADES WITH 14 TEETH TO THE INCH ARE SUPPLIED UNLESS 24 TEETH OR "FINE" IS SPECIFIED.**

Owing to the fact that Star Hack Saws are universal in their application the **NECESSITY IS OBVIATED OF DEALERS' CARRYING IN STOCK BLADES OF VARYING WIDTHS, THICKNESS, AND NUMBER OF TEETH TO THE INCH.**

Size (inches)	Teeth, per inch	Weight, per gross (lbs.)	Price, per gross
6x⅜x.022	14 24	2¾	**$7.00**
7x⅜x.022	14 24	3	**7.50**
8x⅜x.022	14 24	3¼	**8.00**
9x⅜x.022	14 24	3½	**9.00**
10x½x.022	14 24	4⅝	**10.00**
11x½x.022	14 24	5	**11.00**
12x½x.025	14 24	5½	**12.00**

Packed ½ gross in a pasteboard box.

STAR POWER HACK SAW BLADES



Made by the same methods that have established Star hand blades as standard. Made from the highest grade of steel with perfect temper and cutting qualities.

MILLED TEETH with **PATENT SET.**

Especially recommended for use in railway shops, steel mills, etc., where **UNIFORMITY OF EXCELLENCE** is demanded.

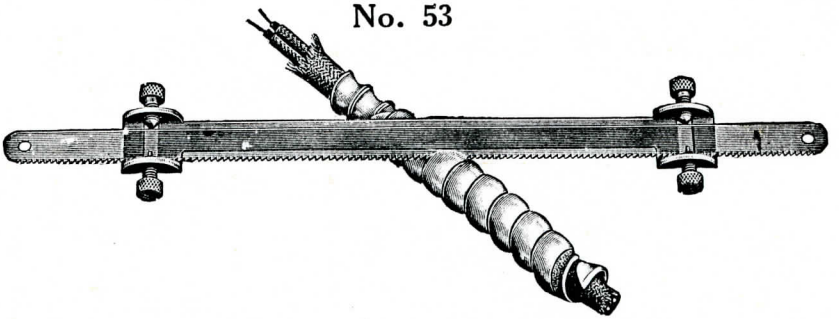
The following sizes cover full range of requirements:—

Size (inches)	Teeth, per inch	Weight, per gross (lbs.)	Price, per gross
12x$\frac{5}{8}$x.032	14	10	**$14.40**
12x$\frac{3}{4}$x.032	14	13	**15.00**
12x$\frac{3}{4}$x.049	10	15$\frac{3}{4}$	**18.00**
12x1x.049	10	25	**28.80**
14x$\frac{1}{2}$x.030	14	10	**15.00**
14x$\frac{3}{4}$x.032	14	14	**18.00**
14x$\frac{3}{4}$x.049	10	18	**21.60**
14x1x.049	10	28	**31.20**
17x1x.049	10	34	**36.00**
17x1x.065	10	45	**39.00**
24x1x.049	10	48	**50.40**
24x1x.065	10	63	**54.00**

	.032	.049	.065	inch gauge
Packed	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$	gross in a pasteboard box

HACK SAW DEPTH GAUGE

No. 53



Pressed steel, of heavy, rigid stock, No. 14 gauge.

Case hardened thumb screws, the lower pair, as shown in illustration, having their points shaped as tenons to overlap and firmly hold the saw blade to gauge.

Adjustable for blades $\frac{1}{2}$ inch or narrower.

Especially adapted for **CUTTING THE WALLS OF FLEXIBLE CONDUITS** for electrical wiring **WITHOUT CUTTING INTO AND INJURING INTERIOR INSULATION.**

Permits the use of highly tempered blades of **CUTTING QUALITIES SUPERIOR TO THOSE OF FLEXIBLE BLADES.**

Length, 7$\frac{1}{2}$ inches.

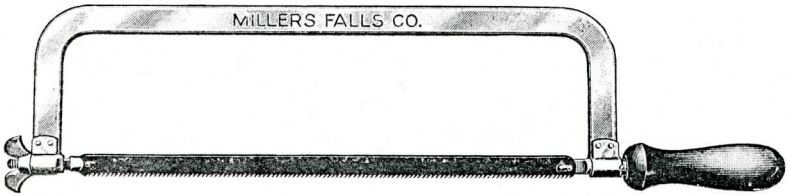
Weight, per dozen, 2 lbs. net.

Price, per dozen, **$3.00.**

Packed 1 dozen in a pasteboard box.

STAR HACK SAW FRAMES

Nos. 124, 125 and 126



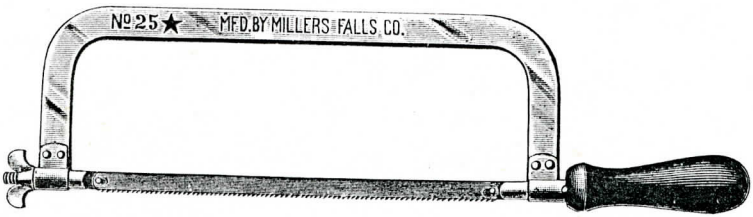
A light, stiff frame of $\frac{5}{32}$x$\frac{5}{8}$ inch steel stock, nickeled; stained hardwood handle.

Blades strained by turning a thumb nut and may be faced in four directions.

Nos	124	125	126
Capacity	8 in.	10 in.	12 in.
Depth under back	$3\frac{1}{8}$ in.	$3\frac{1}{8}$ in.	$3\frac{1}{8}$ in.
Weight, per dozen (with pasteboard boxes)	12 lbs.	$14\frac{1}{4}$ lbs.	$16\frac{1}{2}$ lbs.
Price, per dozen, with one 8-inch blade in each frame	**$5.00**		
Price, per dozen, with one 10-inch blade in each frame		**$5.50**	
Price, per dozen, with one 12-inch blade in each frame			**$6.00**

STAR HACK SAW FRAME

No. 25



Stiff, **POLISHED AND NICKELED** steel frame, made from stock $\frac{11}{16}$x$\frac{3}{16}$ inches; stained hardwood handle.

Blade strained with thumb nut and screw stud; may be faced in four directions.

Capacity, 8 inches.

Depth under back, $3\frac{3}{16}$ inches.

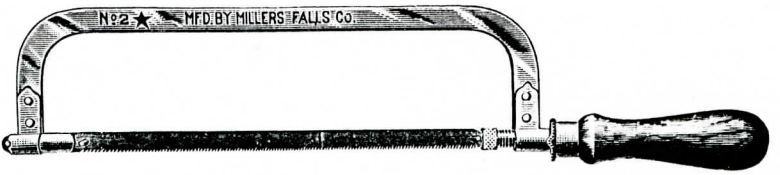
Weight, per dozen (with pasteboard boxes), 13 lbs.

Price, per dozen, without blades, **$7.50.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 2



Rare tropical wood handle; **POLISHED AND NICKELED** steel.

Stiff, solid frame for 8-inch blades only.

Blades strained by **TURNING OF THE HANDLE;** may be faced in four directions.

Knurled check nut screwing down and overlapping the end of the blade to hold it in place while adjusting it in the frame.

Depth under back, $2\frac{3}{8}$ inches.

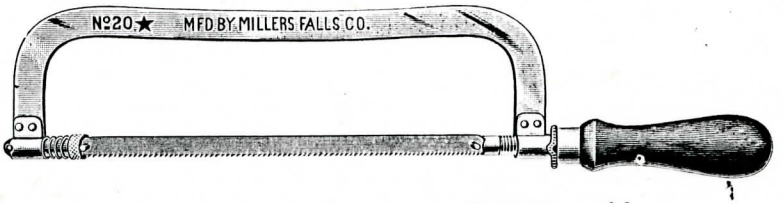
Weight, per dozen (with pasteboard boxes), $10\frac{1}{2}$ lbs.

Price, per dozen, with one 8-inch blade in each frame, **$9.50.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 20



Rare tropical wood handle; **POLISHED AND NICKELED** steel frame.

Especially heavy and stiff stock, $\frac{13}{16} \times \frac{3}{16}$ inches.

Blades strained by **TURNING OF THE HANDLE;** may be faced in four directions.

Knurled check nut, forced by a spring to overlap and hold blade in place while it is being inserted in the frame.

Capacity, 8 and 9 inches.

Weight, per dozen, with pasteboard boxes, 16 lbs.

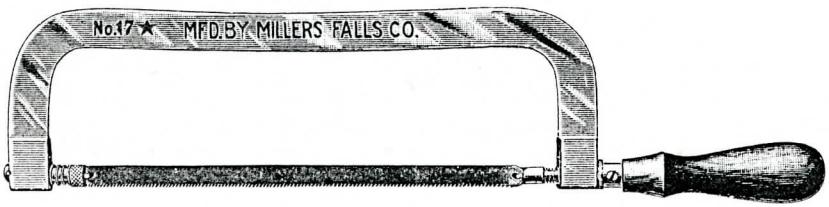
Depth under back, $3\frac{1}{8}$ inches.

Price, per dozen, with one 8-inch blade in each frame, **$12.00.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAMES

Nos. 17 and 18



Rare tropical wood handle; **POLISHED AND NICKELED** steel frame.

Especially heavy and stiff stock, 1x¼ inch.

Blades strained by **TURNING OF THE HANDLE;** may be faced in four directions.

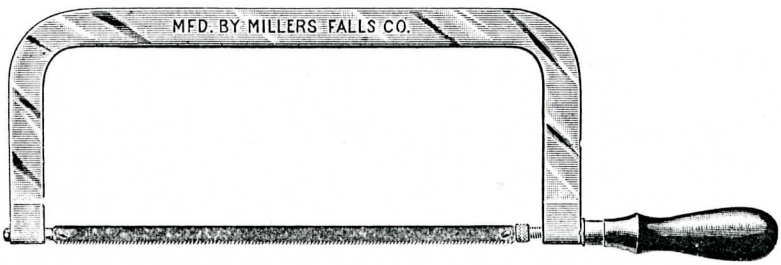
Knurled check nut, forced by a spring to overlap and hold blade in place while it is being inserted in the frame.

Nos.	17	18
Capacity	9 and 10 in.	11 and 12 in.
Depth under back	3 in.	3 in.
Weight, per dozen (with pasteboard boxes)	22 lbs.	27 lbs.
Price, per dozen, with one 10-inch blade in each frame	**$13.00**	
Price, per dozen, with one 12-inch blade in each frame		**$15.50**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 15



POLISHED AND NICKELED frame of **STIFF, HEAVY** steel, 1x¼ inch; rare tropical wood handle.

Blades strained by **TURNING OF THE HANDLE;** may be faced in four directions.

Knurled check nut to screw down and overlap the end of the blade to hold it in place while it is being adjusted in the frame.

Capacity, 12 inches.

Depth under back, 5¼ inches.

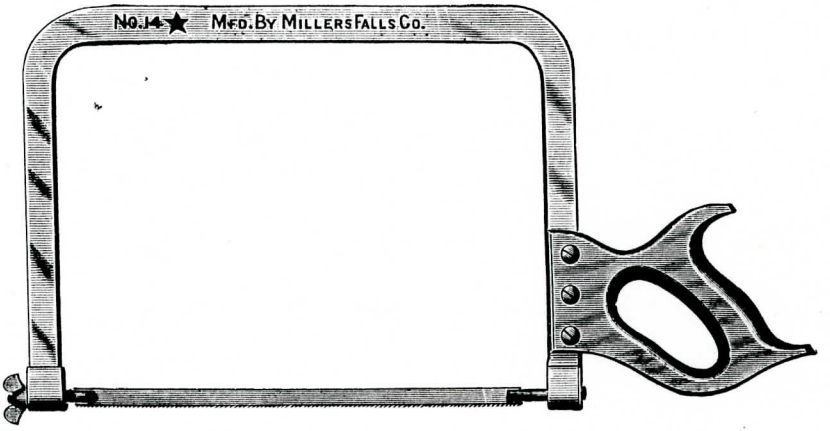
Weight, per dozen (with pasteboard boxes), 30 lbs.

Price, per dozen, with one 12-inch blade in each frame, **$19.50.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAMES

Nos. 14, 14½ and 24



Beech wood handle; extra heavy steel stock, 1 x ¼ inch.

Especially for sawing steel **RAILS, GIRDERS, AND OTHER LARGE WORK.**

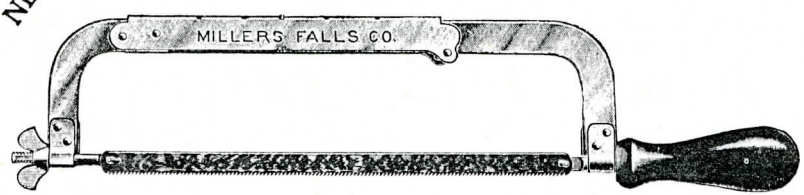
Blades strained by thumb nut and screw stud; may be faced in four directions.

Finish	Polished and nickeled		Japanned
Nos	14	14½	24
Capacity	12 in.	12 in.	12 in.
Depth under back	10¼ in.	7¼ in.	10¼ in.
Weight, per dozen (with pasteboard boxes)	48 lbs.	37¾ lbs.	48 lbs.
Price, per dozen, with one 12-inch blade in each frame	**$23.00**	**$23.00**	**$18.00**

Packed 1 in a pasteboard box.

NEW TOOL

STAR HACK SAW FRAME
No. 78

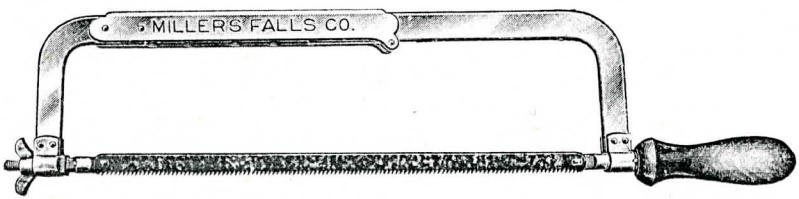


Stained hardwood handle.
Burnished and nickeled steel stock, $\frac{5}{32}$x$\frac{11}{16}$ inch.
Adjustable for blades from 8 to 12 inches in length.
Blades may be faced in four different directions. By means of a swivel stud, this may be accomplished without removing the blade from the frame.
Blades strained by thumb nut and screw stud.
Depth under back, $2\frac{1}{2}$ inches.
Weight, per dozen (with pasteboard boxes), 13 lbs.
Price, per dozen, **$6.00.**
Packed 1 in a pasteboard box.

No. 77

The same as No. 78, except stock is lighter, $\frac{5}{32}$x$\frac{5}{8}$ inch, and the straining stud is not made to swivel.
Price, per dozen, **$4.25.**
Packed 1 in a pasteboard box.

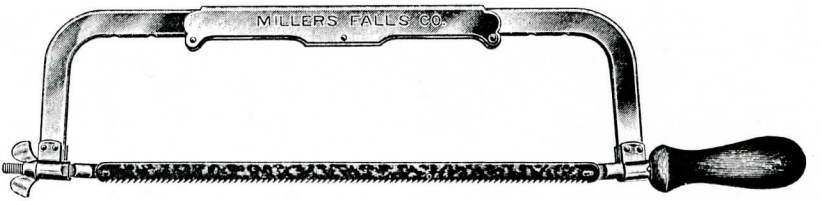
STAR HACK SAW FRAME
No. 26



A light, stiff frame of $\frac{3}{16}$x$\frac{11}{16}$ inch steel stock, nickeled; stained hardwood handle.
Steel sheath, solid to the frame at one end and adjustable at the other.
Adjustable for blades from 8 to 12 inches long.
Blade strained by turning of a thumb nut and may be faced in four directions.
Weight, per dozen (with pasteboard boxes), $16\frac{1}{2}$ lbs.
Depth under back, $3\frac{1}{8}$ inches.
Price, per dozen, with one 10-inch blade in each frame, **$7.20.**
Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 27



Frame of $\frac{3}{16}$x$1\frac{1}{16}$ inch steel stock, **POLISHED AND NICKELED;** stained hardwood handle.

Extensible for blades from 8 to 12 inches.

Blades strained by thumb nut and screw stud; may be faced in four directions.

Weight, per dozen (with pasteboard boxes), $12\frac{1}{2}$ lbs.

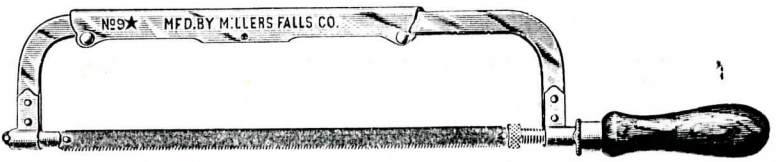
Depth under back, $3\frac{1}{4}$ inches.

Price, per dozen, with one 10-inch blade in each frame, **$11.00.**

Packed 1 a pasteboard box.

STAR HACK SAW FRAMES

Nos. 9 and 49



Rare tropical wood handle; **POLISHED AND NICKELED** steel.

STEEL SHEATH over the back making frame **LIGHT** and **STRONG.**

Blades strained by **TURNING OF THE HANDLE;** may be faced in four directions.

Adjustable for blades from 8 to 12 inches long.

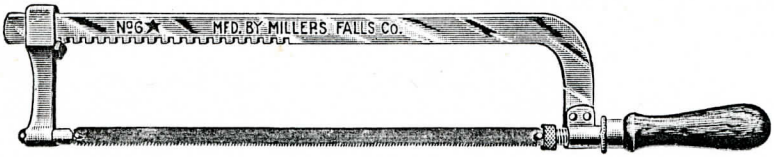
Knurled check nut screwing down and overlapping the end of the blade to hold it in place while inserting it in the frame.

Nos	9	49
Depth under back	$2\frac{3}{4}$ in.	$3\frac{3}{8}$ in.
Stock	$\frac{9}{16}$x$\frac{3}{16}$	$\frac{11}{16}$x$\frac{3}{16}$
Weight, per dozen (with pasteboard boxes)	$12\frac{1}{2}$ lbs.	$16\frac{1}{2}$ lbs.
Price, per dozen, with one 10-inch blade in each frame	**$13.00**	**$14.50**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 6



Rare tropical wood handle; **POLISHED AND NICKELED** steel stock, $\frac{3}{16}$x$1\frac{3}{16}$ inch.

STIFF, STRONG back.

QUICKLY ADJUSTABLE for blades from 6 to 12 inches long.

Blades strained by **TURNING OF THE HANDLE;** may be faced in four directions.

Knurled check nut screwing down to overlap the end of the blade and hold it in place while being adjusted in the frame.

Weight, per dozen (with pasteboard boxes), 18 lbs.

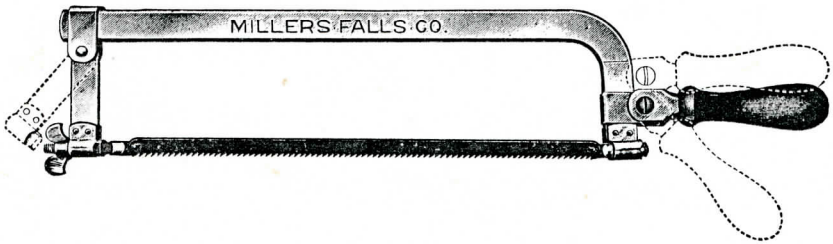
Depth under back, $2\frac{3}{4}$ inches.

Price, per dozen, with one 12-inch blade in each frame, **$15.50.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAMES

Nos. 7 and 8



Stained hardwood handle; steel frame of stock $\frac{3}{16}$x$1\frac{3}{16}$ inch.

QUICKLY ADJUSTABLE for blades from 6 to 12 inches long.

Blades strained by turning of a thumb nut; may be faced in four directions.

ADJUSTABLE HANDLE, which can be **SHIFTED IN ITS POSITION ON THE FRAME,** and **THE ANGLE OF WHICH,** as shown by dotted lines, **CAN BE CHANGED** simply by turning of the handle.

Weight, per dozen (with pasteboard boxes), $19\frac{1}{2}$ lbs.

Depth under back, $3\frac{1}{4}$ inches.

No. 7, nickeled, except black enameled handle clamp, per dozen, with one 12-inch blade in each frame, **$12.00.**

No. 8, entirely polished and nickeled, per dozen, with one 12-inch blade in each frame, **$16.00.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAMES

Nos. 10 and 11

Rare tropical wood handle; **POLISHED AND NICKELED** steel stock, $\frac{3}{16}$x$\frac{11}{16}$ inch.

COMPACT, STIFF frame, with **EXTRA STRENGTH IN THE MIDDLE OF THE BACK** where there is the greatest strain.

Extensible for blades from 8 to 12 inches, with scale for the different lengths on the back of the frame.

Blades strained by **TURNING OF THE HANDLE;** may be faced in four directions.

Knurled check nut screwing down and overlapping the end of the blade to hold it in place while it is being inserted in the frame.

Nos.	10	11
Depth under back	$2\frac{3}{8}$ in.	$3\frac{1}{2}$ in.
Weight, per dozen (with pasteboard boxes)	$15\frac{3}{4}$ lbs.	$16\frac{1}{2}$ lbs.
Price, per dozen, with one 10-inch blade in each frame	**$15.50**	**$16.50**

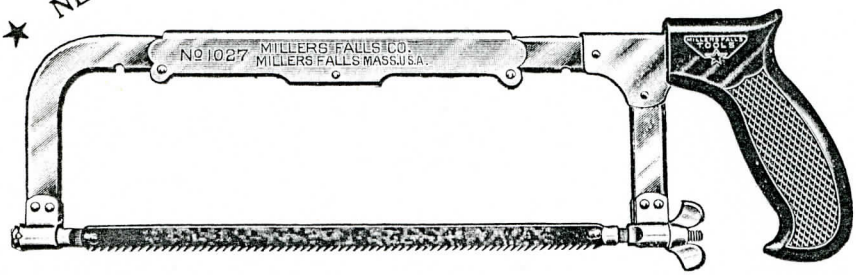
Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 1027

NEW TOOL

"PISTOL GRIP"



Black composition handle; **POLISHED** and **NICKELED** steel stock, $\frac{3}{16} \times \frac{11}{16}$ inch, **COMPACT, STIFF** frame, with **EXTRA STRENGTH IN THE MIDDLE OF THE BACK** where there is the greatest strain.

Handle a **PERFECT FIT FOR ANY SIZE OF HAND,** secured to the frame by a **STEEL RIB EXTENDING NEARLY THE FULL LENGTH OF THE HANDLE,** and shaped so as to make the tool correctly balanced.

Blades strained by thumb nut and screw stud, placed beneath the handle, so as to allow **MAXIMUM STROKE;** blades may be faced in four directions.

Extensible for blades from 8 to 12 inches.

Depth under back, $3\frac{1}{4}$ inches.

Weight, per dozen (with pasteboard boxes), $17\frac{3}{4}$ lbs.

Price, per dozen, with one 10-inch blade in each frame, **$15.00.**

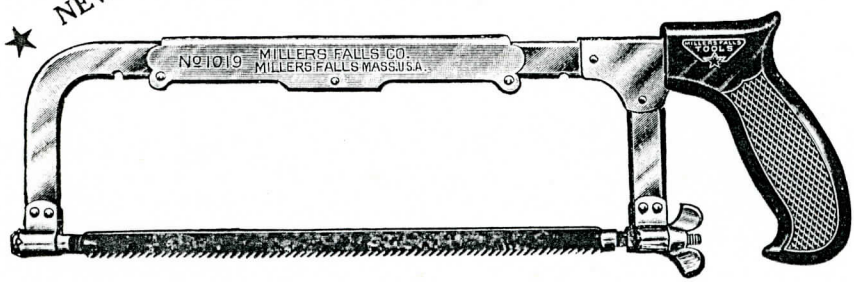
Packed 1 in a pasteboard box.

STAR HACK SAW FRAME

No. 1019

NEW TOOL

"PISTOL GRIP"



The same as Frame No. 1027, shown above, except that the stock is heavier, $\frac{3}{16} \times \frac{13}{16}$ inch, making a very substantial frame.

Weight, per dozen (with pasteboard boxes), 24 lbs.

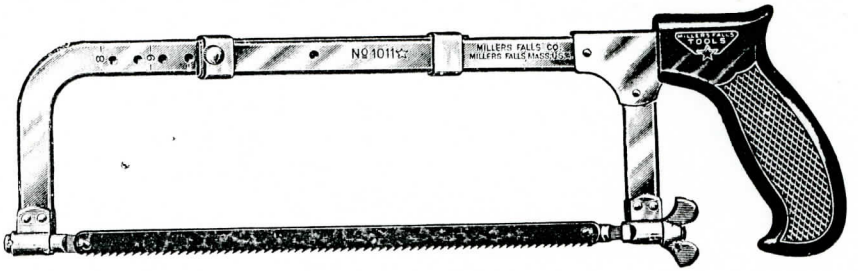
Price, per dozen, with one 10-inch blade in each frame, **$17.50.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAME
No. 1011

★ NEW TOOL ★

"PISTOL GRIP"



Black composition handle; **POLISHED** and **NICKELED** steel stock, $\frac{3}{16}$x$\frac{11}{16}$ inch. **COMPACT, STIFF** frame, with **EXTRA STRENGTH IN THE MIDDLE OF THE BACK** where there is the greatest strain.

Handle a **PERFECT FIT FOR ANY SIZE OF HAND**, secured to the frame by a **STEEL RIB EXTENDING NEARLY THE FULL LENGTH OF THE HANDLE**, and shaped so as to make the tool correctly balanced.

Blades strained by thumb nut and screw stud, placed beneath the handle, so as to allow **MAXIMUM STROKE**; blades may be faced in four directions.

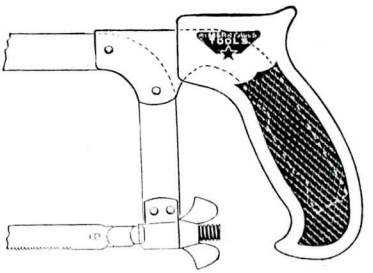
Extensible for blades from 8 to 12 inches, with scale for the different lengths on the back of the frame.

Depth under back, $3\frac{1}{2}$ inches.

Weight, per dozen (with pasteboard boxes), $21\frac{3}{4}$ lbs.

Price, per dozen, with one 10-inch blade in each frame, **$18.00.**

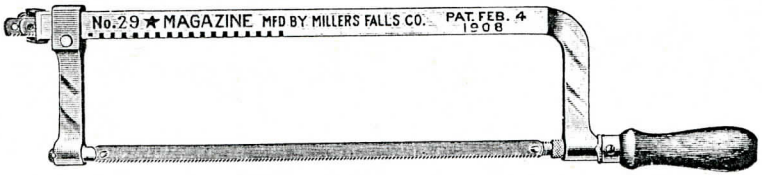
DETAILS OF PISTOL GRIP HANDLE



Used on Frames Nos. 1011, 1049, and 1027.

MAGAZINE STAR HACK SAW FRAME

No. 29



Stained hardwood handle; steel frame **POLISHED AND NICKELED** on the back and japanned on the sliding clamp and the end next the handle.

Back of rectangular tubing, affording **LIGHTNESS** and **STRENGTH** with **A RECEPTACLE** large enough **FOR SIX SAW BLADES** and closed with a hinged cap.

Blades always **CONVENIENT TO HAND** and **SAFE FROM ACCIDENTAL BREAKAGE.**

Sliding clamp **INSTANTLY ADJUSTABLE** to different lengths of blades.

Blades strained by **TURNING OF THE HANDLE;** may be faced in four directions.

Knurled check nut screwing down and overlapping the end of the blade to hold it in place while it is being inserted in the frame.

Capacity, 8 to 12 inches.

Depth under back, 3½ inches.

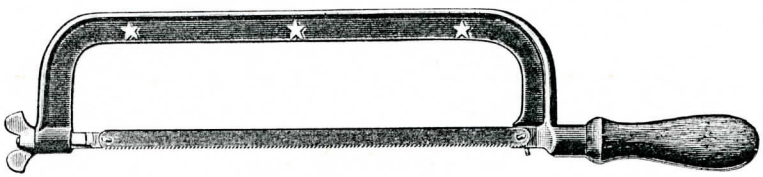
Weight, per dozen (with pasteboard boxes), 21 lbs.

Price, per dozen, with one 12-inch blade in each frame, **$20.00.**

Packed 1 in a pasteboard box.

STAR HACK SAW FRAMES

Nos. 4A, 4B, 4C, and 4D



Stained hardwood handle; black enameled frame.

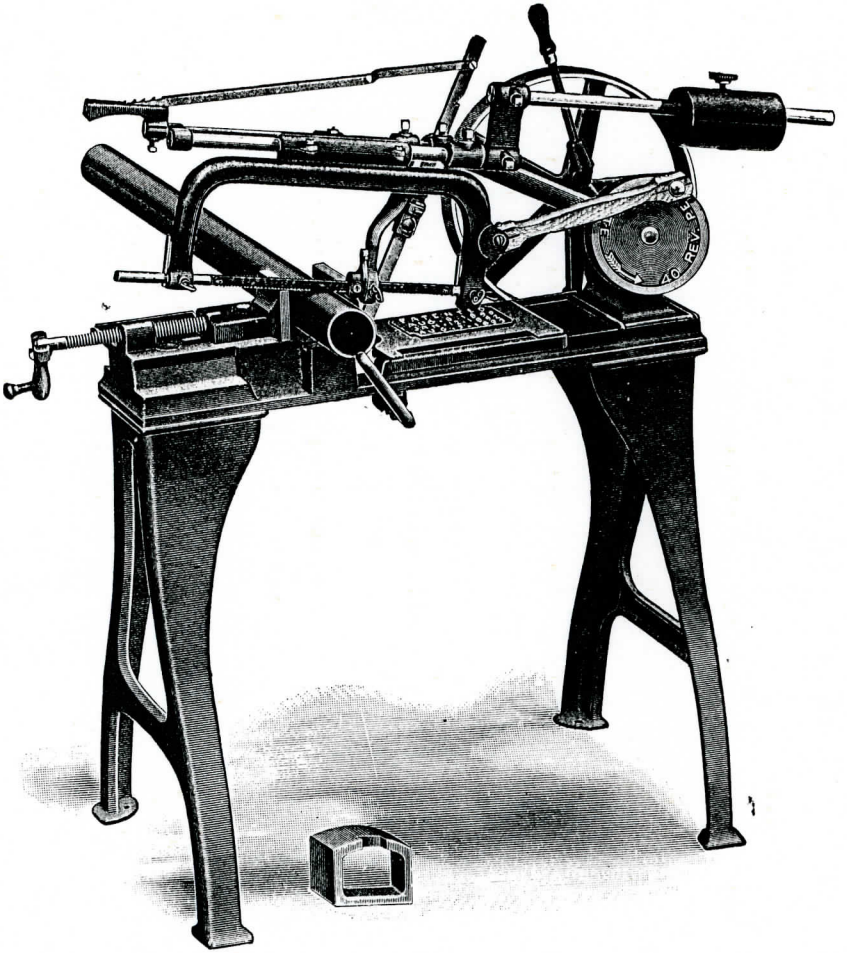
Blades strained with thumb screw and screw stud; may be faced in four directions.

Nos.	4A	4B	4C	4D
Capacity	8 in.	9 in.	10 in.	12 in.
Depth under back	2¼ in.	2¼ in.	2¼ in.	2¼ in.
Weight, per dozen	12½ lbs.	13½ lbs.	15 lbs.	17½ lbs.
Price, per dozen, without blades	**$4.00**	**$4.00**	**$4.25**	**$4.50**

Packed ½ dozen in a pasteboard box.

STAR POWER HACK SAW

No. 89



REQUIRES NO ATTENTION, except when inserting work and starting machine; **STOPS AUTOMATICALLY** when cut is made.

Adjustable, **SELF-FEEDING,** cutting fast or slow according to material at work on.

Adapted to all kinds of work, of all shapes and sizes up to 4½ inches in diameter.

Power transmitted by direct drive.

Six 12-inch blades furnished with each machine; also block to permit the use of full length of blades.

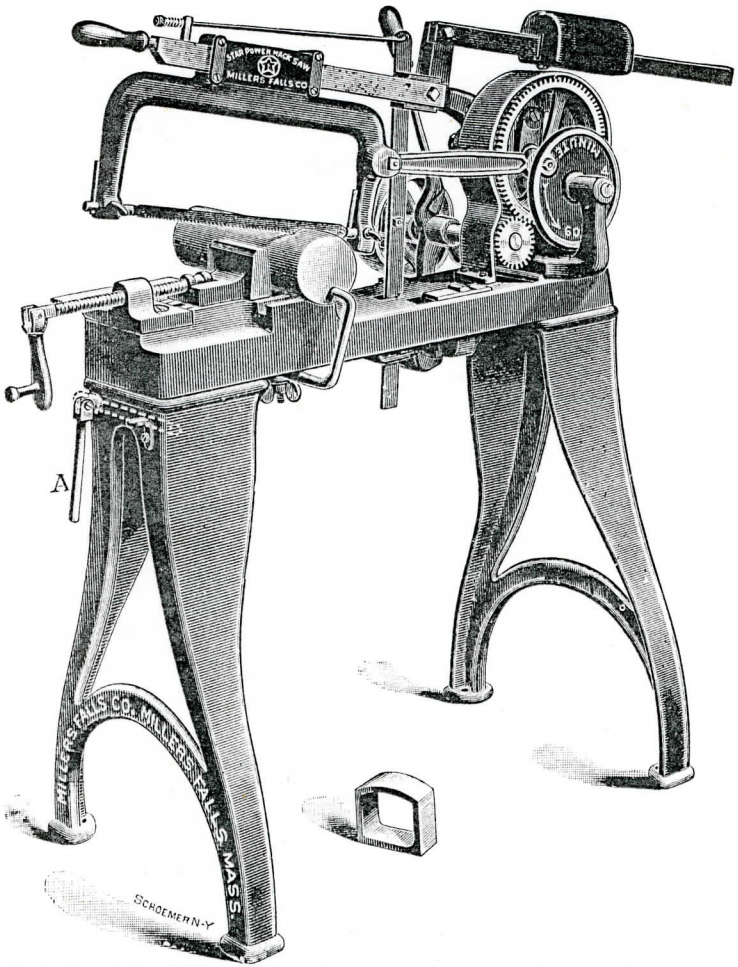
Speed recommended, 45 strokes a minute; ⅛ horse power recommended.

Floor space, 18x30 inches; distance from floor to top of bed, 28 inches; capacity, 10, 11, and 12 inch blades; size of pulley, 13½x2⅛ inches; weight, boxed, 222 lbs.; crated, 200 lbs.; net, 168 lbs.

Price, **$30.00.**

For prices of parts see page 122.

STAR POWER HACK SAW, No. 90



GEAR DRIVE giving great STEADINESS to the stroke. QUICK RETURN MOVEMENT of saw frame, thus saving time, the speed of back stroke being just twice that of cutting stroke.

Saw frame SLIGHTLY LIFTED ON BACK STROKE, PROLONGING THE LIFE OF THE BLADE.

An attachment provided which, by lifting lever A, as shown in illustration, HOLDS THE BLADE IN SUSPENSION a trifle above the work. This permits the use of both hands in adjusting the work, or measuring it, etc. A support on the bed on the cut-off side of the blade TO PREVENT THE MATERIAL FROM DROPPING OFF WHEN CUT IS NEARLY FINISHED. An adjusting screw in the head to take up any wear on the arm. A REMOVABLE VISE NUT in the bed, which can be replaced in case of wear. Working parts under the bed AWAY FROM DUST AND DIRT.

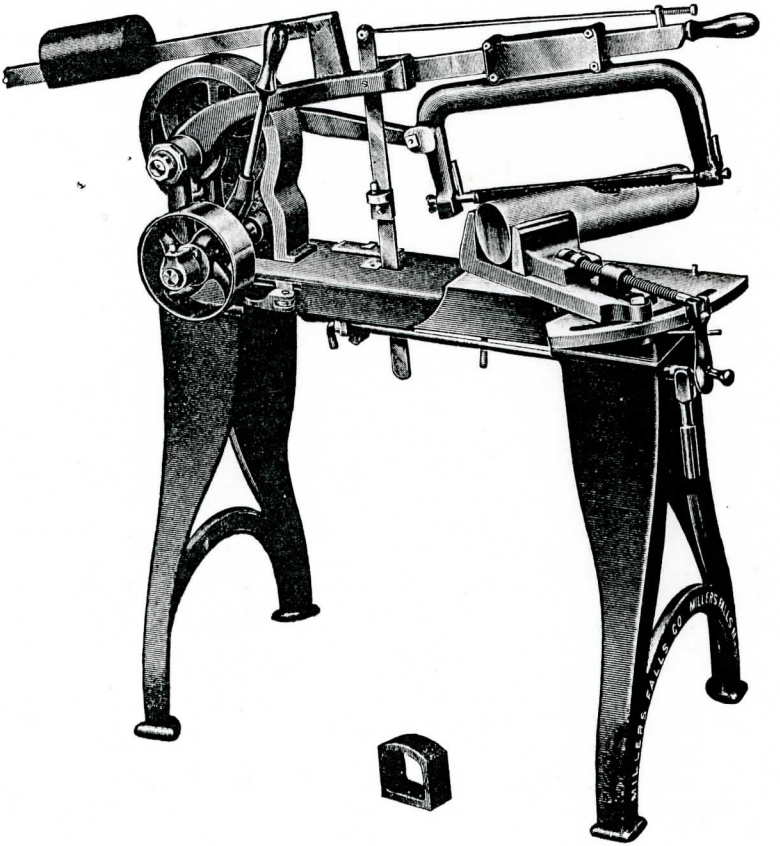
STOPS AUTOMATICALLY when cut is made; ⅓ horse power required.

Back geared 3 to 1. Height from floor to top of bed, 28 inches; floor space, 20x46 inches; strokes recommended per minute, 60; size of pulley, 2x6 inches; cutting capacity, 5x5 inches; length of blade, 12 inches; weight, boxed, 294 lbs.; weight, crated, 258 lbs.; weight, net, 215 lbs.

Price, $40.00.

STAR POWER HACK SAW

No. 91



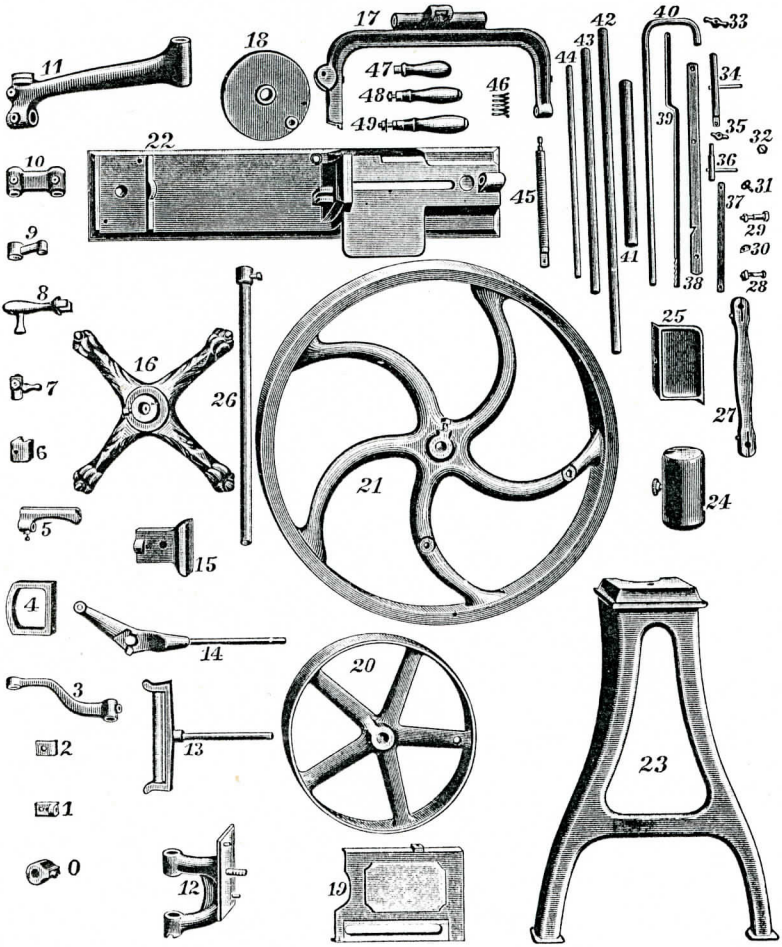
In all respects the same as machine No. 90, shown preceding, except that it is provided with a swivel vise.

Weight, boxed, 305 lbs.; crated, 270 lbs.; net, 225 lbs.

Price, **$45.00.**

For prices of parts see pages 123 and 124.

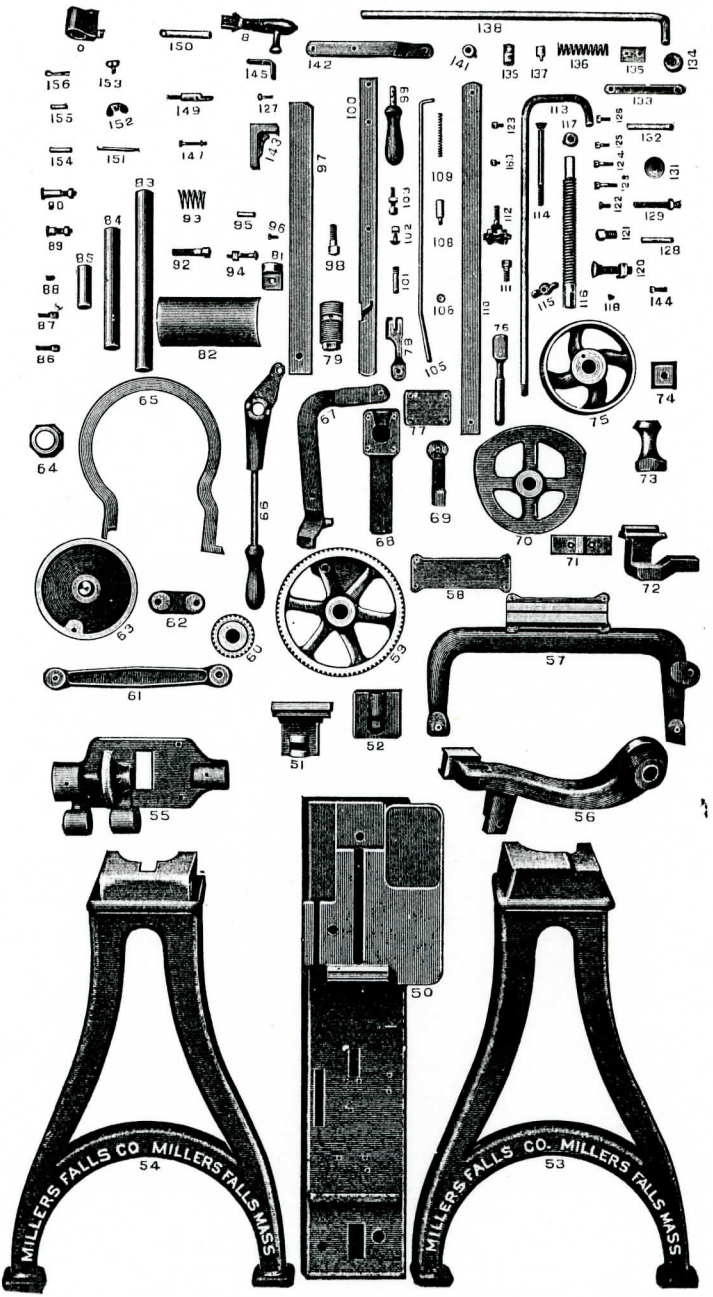
PARTS OF STAR POWER HACK SAW, No. 89, AND PRICES



No.			No.		
0	Clutch Collar	$0.30	25	Tool Tray	$0.35
1	Elevator Stop	.10	26	Rest Standard	.70
2	Frame Clamp	15	27	Wood Pitman	.30
3	Long Guide	.40	28	Small Pitman Bolt	.10
4	Loose Vise Jaw	.75	29	Large Pitman Bolt	.15
5	Lift Handle	.30	30	Dog	.10
6	Gauge Clamp	.10	31	Malleable Thumb Screw	.15
7	Short Guide	.30	32	Guide Screw and Nut	.20
8	Vise Wrench	.25	33	Gauge Clamp Nut	.15
9	Short Yoke	.25	34	Long Stud	.20
10	Long Yoke	.40	35	Short Stud Nut	.10
11	Arm	2.80	36	Short Stud	.15
12	Standard	2.80	37	Short Strap	.10
13	Rest Yoke	.45	38	Elevator Bar	.20
14	Clutch Lever	.45	39	Long Strap	.20
15	Vise Jaw	1.10	40	Gauge Rod	.25
16	Rest Base	1.60	41	Arbor	.30
17	Frame	1.75	42	Weight Rod	.30
18	Face Plate	.80	43	Large Bearing Rod	.25
19	Sliding Frame	.40	44	Small Bearing Rod	.20
20	Pulley	3.60	45	Vise Screw	.40
21	Hand Wheel	13.60	46	Clutch Collar Spring	.10
22	Bed	5.40	47	Clutch Lever Handle	.30
23	Leg	4.25	48	Pulley Bolt and Handle	.35
24	Weight	1.75	49	Hand Wheel Bolt and Handle	.45

PARTS OF STAR POWER HACK SAW

Nos. 90 and 91

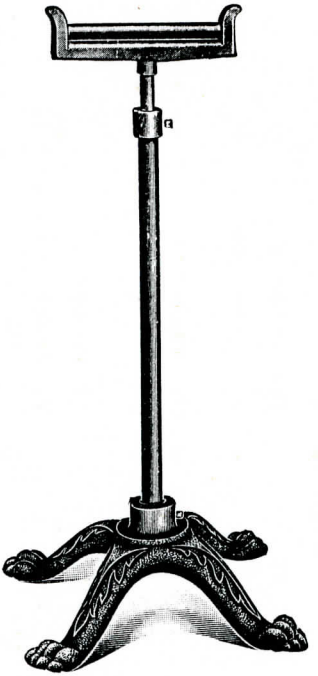


PRICES OF PARTS OF STAR POWER HACK SAWS

Nos. 90 and 91

0	Clutch Collar	$0.25
8	Vise Handle	.25
50	Bed	8.25
51	Vise Jaw	.75
52	Vise Nut	.60
53	Front Leg	6.00
54	Rear Leg	6.00
55	Head	4.50
56	Arm	2.30
57	Frame	2.20
58	Frame Cover	.30
59	Large Gear	2.30
60	Small Gear	1.00
61	Pitman	.40
62	Link	.25
63	Face Plate	.90
64	Adjusting Screw Check Nut	.25
65	Gear Guard	.75
66	Clutch Lever	.60
67	Lifter Lever	.80
68	Lifter Box	.75
69	Lifter Cam	.15
70	Cam	.90
71	Knockoff	.05
72	Knockoff Lifter	.40
73	Gauge Clamp	.25
74	Gauge Top	.10
75	Pulley	.75
76	Gauge Lifter Handle	.15
77	Lifter Cover	.15
78	Clutch Lever Link	.20
79	Adjusting Screw	.80
81	Elevator Stop	.10
82	Weight	1.25
83	Drive Arbor	.30
84	Gear Arbor	.25
85	Face Plate Arbor	.15
86	Gear Screw	.10
87	Cam and Clutch Collar Screw	.05
88	Small Gear Screw	.10
89	Gear Link Screw	.10
90	Face Plate Link Screw	.15
92	Head Lock Screw	.15
93	Collar Spring	.05
94	Pitman Screw	.05
95	Pulley Pin	.05
96	Catch Plate and Gear Guard Screw	.05
97	Guide Bar	1.00
98	Guide Bar Screw	.05
99	Guide Bar Handle	.20
100	Elevator Bar	.55
101	Elevator Bar Screw	.05
102	Elevator Bar Stop Bolt	.05
103	Elevator Bar Adjusting Screw	.05
105	Elevator Bar Trip Rod	.10
106	Elevator Bar Trip Rod Nut	.05
108	Elevator Bar Trip Rod Stud	.08
109	Elevator Bar Trip Rod Spring	.05
110	Weight Bar	.80
111	Weight Bar Screw	$0.05
112	Weight Screw	.10
113	Gauge Bar	.15
114	Gauge Bar Clamp Bolt	.05
115	Gauge Bar Clamp Bolt Wing Nut	.10
116	Vise Screw	.65
117	Vise Screw Collar	.10
118	Vise Screw Collar Screw	.05
120	Vise Nut Clamp Bolt	.10
121	Vise Jaw Screw	.10
122	Knockoff Screw	.05
123	Knockoff Strap Screw	.05
124	Knockoff Lever and Link Screw	.05
125	Knockoff Center Lever Screw	.10
126	Knockoff and Link Screw	.05
127	Lifter Box Cover Screw	.05
128	Lifter Box Raising Pin	.05
129	Lifter Box Adjusting Screw	.10
131	Lifter Box Disc	.10
132	Lifter Box and Lever Pin	.10
133	Connecting Strap	.05
134	Lifter Lever Roll	.05
135	Elevator Catch Plate	.05
136	Lifter Lever Spring	.05
137	Lifter Lever Spring Stud	.05
138	Measuring Lifter Rod	.15
139	Measuring Lifter Rod Head	.20
141	Measuring Lifter Rod Collar	.10
142	Center Lever	.20
143	Measuring Lifter Rod Bearing Casting	.20
144	Measuring Lifter Rod Bearing Screw	.05
145	Measuring Lifter Rod Bearing Rest	.20
147	Frame Cover Screw	.05
149	Short Stud	.15
150	Long Stud	.20
151	Stud Pin	.10
152	Stud Wing Nut	.05
153	Stud Thumb Screw	.05
154	Head Dowel Pin	.05
155	Weight Bar Pin	.05
156	Cotter Pin	.02
160	Lifter Box Disc Screw	.05
170	Bed	8.25
171	Vise	2.60
172	Pitman	.40
173	Knockoff	.10
174	Gauge Clamp	.25
175	Vise Clamp Bolt	.10
176	Vise Swivel Bolt	.10
177	Gauge Bar Clamp Bolt	.05
178	Vise Screw	.55
179	Leg Clamp Bolt	.05
180	Lifter Lever Spring	.05
181	Stop Dowel Pin	.05
182	Vise Jaw Screw	.10
183	Clutch Washer	.15

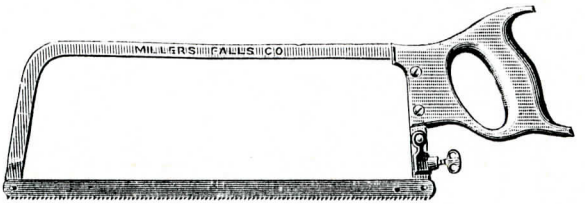
BAR REST



To be used in connection with power hack saw to support long pieces to be cut.
Adjustable to various heights, ranging from 24 to 31 inches.
Weight, 12 lbs.
Price, **$2.00.**

STAR KITCHEN SAW

No. 347



Steel frame polished; beech handle.
Device for straining the blade.
Capacity, 14 inches.
Weight, per dozen, 12½ lbs.
Price, per dozen (1 blade with each frame), **$5.25.**
Packed ½ dozen in a pasteboard box.
Price of saw blades, per dozen, **$1.45.**

ECONOMY BUTCHER SAW BLADE

Hardened and tempered evenly throughout.

ONE BLADE COSTS LESS THAN THE FILING OF AN ORDINARY BLADE AND DOES THREE OR FOUR TIMES THE WORK BEFORE BECOMING DULL AND CUTS FASTER.

Convenience in always having sharp blades at hand.

SAWS FURNISHED, UNLESS OTHERWISE SPECIFIED, $\frac{11}{16}$ inch wide with $9\frac{1}{2}$ teeth to the inch.

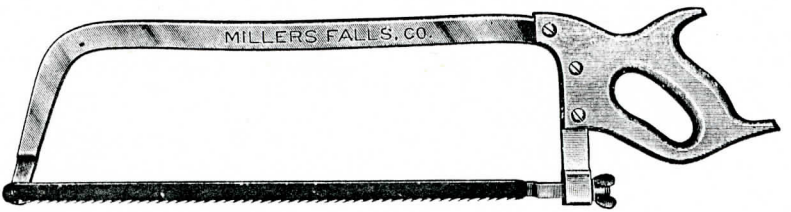
SAWS FURNISHED ONLY WHEN SO ORDERED, $\frac{1}{2}$ inch wide with 14 teeth to the inch.

Length	14 in.	16 in.	18 in.	20 in.	22 in.	24 in.	26 in.
Weight, per gross, $\frac{11}{16}$ in. wide	9 lbs.	10 lbs.	11 lbs.	12 lbs.	13 lbs.	14 lbs.	15 lbs.
Weight, per gross, $\frac{1}{2}$ in. wide	6 lbs.	7 lbs.	8 lbs.	9 lbs.	10 lbs.	11 lbs.	
Price, per dozen	**$1.45**	**$1.45**	**$1.60**	**$1.60**	**$1.75**	**$1.75**	**$1.95**
Price, per gross	**$17.00**	**$17.00**	**$19.00**	**$19.00**	**$21.00**	**$21.00**	**$23.00**

Packed $\frac{1}{2}$ gross in a pasteboard box.

STAR BUTCHER SAW FRAME

No. 2

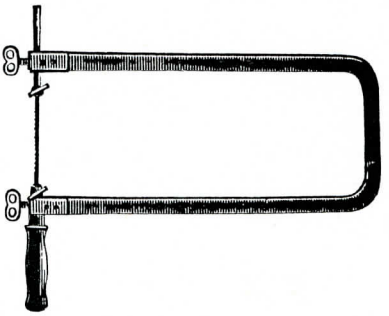


Flat crucible steel backs. Beech handles, with polished edges.

Capacity	14 in.	16 in.	18 in.	20 in.	22 in.	24 in.	26 in.
Weight, per doz.	25 lbs.	$27\frac{1}{2}$ lbs.	30 lbs.	$32\frac{1}{2}$ lbs.	35 lbs.	$37\frac{1}{2}$ lbs.	40 lbs.
Price, per dozen, without blades	**$15.00**	**$16.00**	**$18.25**	**$19.25**	**$20.25**	**$21.25**	**$22.25**

Packed $\frac{1}{3}$ dozen in a pasteboard box.

SPRING STEEL FRET SAW FRAMES



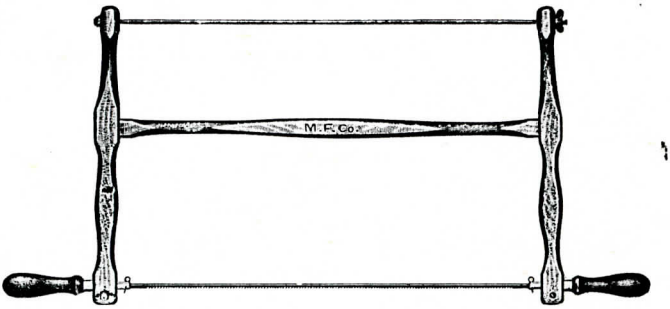
Best quality of spring steel, nickeled; rare tropical wood handle.

Interchangeable parts in case repairs should be needed.

Capacity	8 in.	10 in.	12 in.	14 in.	16 in.
Weight, per dozen (with pasteboard boxes)	10 lbs.	11 lbs.	12½ lbs.	14 lbs.	14½ lbs.
Price, per dozen	**$12.30**	**$12.60**	**$12.90**	**$13.20**	**$13.50**

Packed 1 in a pasteboard box.

TURNING SAWS



Birch wood; ebonized handles; steel tension rod.

Index on each handle to show how far to turn.

Friction regulated by screws.

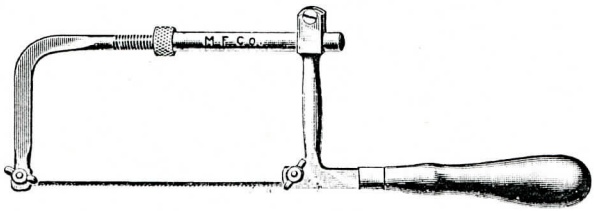
Capacity	12 in.	14 in.	18 in.	20 in.	22 in.	24 in.
Weight, per dozen (with pasteboard boxes)	13 lbs.	17 lbs.	18½ lbs.	19½ lbs.	21 lbs.	22 lbs.
Price, per dozen (including one blade with each frame)	**$14.40**	**$15.00**	**$15.60**	**$16.40**	**$17.00**	**$17.60**

Packed 1 in a pasteboard box.

	12 in.	14 in.	18 in.	20 in.	22 in.	24 in.

JEWELERS' SAW

No. 377



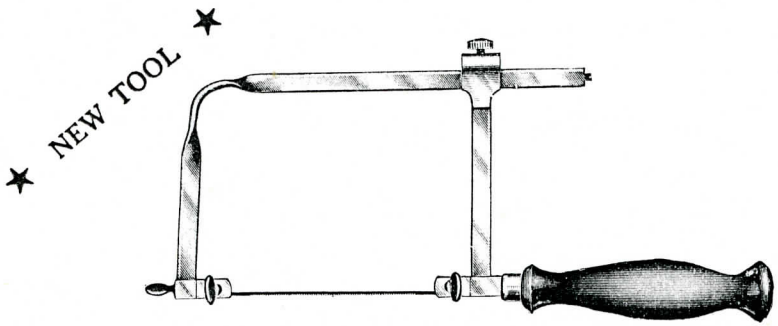
Forged, spring steel, nickeled; rare tropical wood handle.
Adjustable from 4 to 6 inches.
Weight, per dozen, 4½ lbs.
Price, per dozen, **$14.00.**
Packed ¼ dozen in a pasteboard box.

JEWELERS' SAW BLADES

Nos. 000 to 6, inclusive, per gross, **$1.25.**

PIERCING SAWS

Nos. 380, 381 and 382



Stiff, burnished spring steel; stained and polished hardwood handle.
Twist in forward end of frame to give the desired spring.
Hardened steel clamps with convenient thumb nuts.
Handle to fit the hand and with end adapted to rest against the body of the operator when adjusting blades in the frame.
Especially made for silversmiths, workers in arts and crafts, etc.

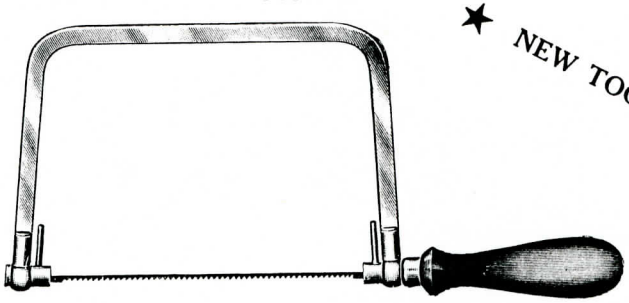
Nos.	380	381	382
Depth under back, inches	4	5	6
Weight, per dozen, lbs.	6	6¼	6½
Price, per dozen	**$9.00**	**$9.50**	**$10.00**

Packed ⅓ dozen in a pasteboard box.

COPING SAW

No. 43

★ NEW TOOL ★



Stiff flat spring steel, **NICKELED;** stained hardwood handle.

Direction of blade controlled by pins in studs at either end of the blade so that it is unnecessary to remove the blade from frame when it is desired to change the direction of the cut.

Blades strained by turning of the handle and may be locked facing in any desired direction by turning the handle against frame clamp.

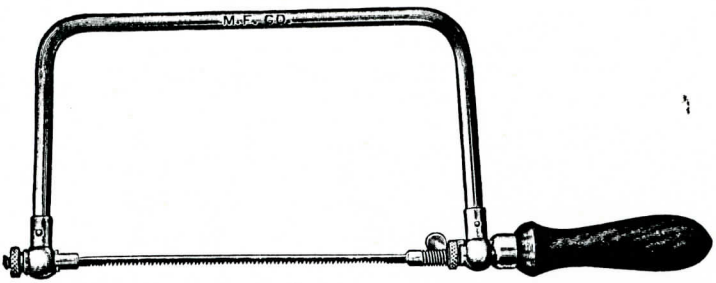
Weight, per dozen, with pasteboard boxes, 6 lbs.

Price, per dozen, including 1 No. 65 blade with each frame, **$10.50.**

Packed ½ dozen in a pasteboard box.

COPING SAW, BALL-BEARING

No. 42



Heavy steel wire, **NICKELED;** rare tropical wood handle.

Frame may be **LOCKED RIGID** or adjusted to **SWING FREE WITHOUT REFERENCE TO THE DIRECTION BLADE TAKES IN SAWING** and thus **OBVIATES THE NECESSITY OF STOPPING WORK TO CHANGE THE ANGLE OF THE BLADE.**

BALL BEARINGS under outer head **TO INSURE THE ALIGNMENT OF BLADE** when the back is swinging free.

Devices to lock the frame rigid **AT BOTH ENDS OF THE BLADE.**

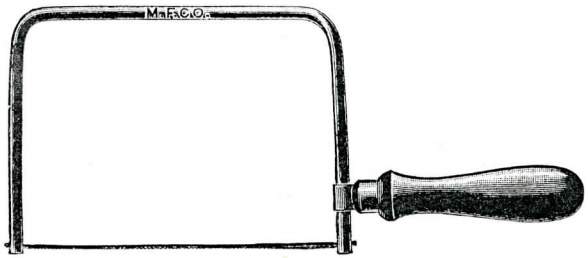
Weight, per dozen, with pasteboard boxes, 6 lbs.

Price, per dozen, including 3 No. 60 blades with each frame, **$14.00.**

Packed ½ dozen in a pasteboard box.

COPING SAW

No. 40



Hardwood handle, stained; steel wire, **NICKELED.**

Four inches deep; holds 6-inch saw blades with looped ends.

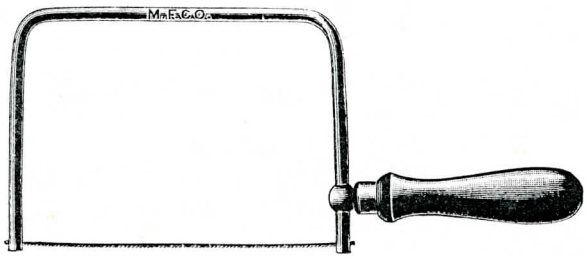
Weight, per dozen, 4 lbs.

Price, per dozen, including 1 dozen blades with each frame, **$4.25.**

Packed 1 dozen in a pasteboard box.

COPING SAW

No. 41



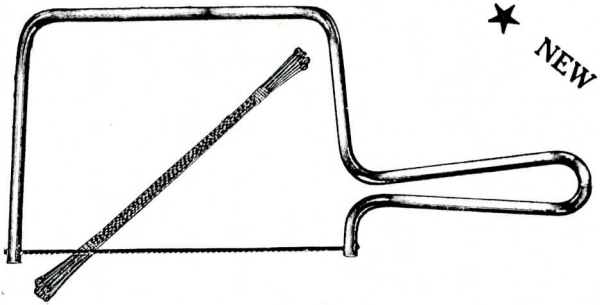
The same as Coping Saw No. 40, shown next preceding, except that the handle is fastened to the frame with a ball-shaped clamp, adding to the firmness of the fastening and to the appearance of the tool.

Weight, per dozen, 4 lbs.

Price, per dozen, including 1 dozen blades with each frame, **$5.50.**

Packed 1 dozen in a pasteboard box.

COPING SAW
No. 44



★ NEW TOOL ★

NICKELED all wire frame of stiff stock $\frac{1}{4}$ inch in diameter.
Blades may be faced in four directions.
Weight, per dozen, 4 lbs.
Price, per dozen, including 1 dozen No. 50 blades with each frame, **$2.50.**
Packed $\frac{1}{2}$ dozen in a pasteboard box.

COPING SAW BLADES
No. 50

6x$\frac{1}{16}$ inches; turned ends; for Frames Nos. 40 and 41.
Price, per gross, **$1.20.**

No. 60

6x$\frac{3}{32}$ inches; with pins in the ends.
May be used with any coping saw frame taking 6-inch blades.
Cut faster and straighter and last longer than the finer sort.
Price, per gross, **$5.50.**

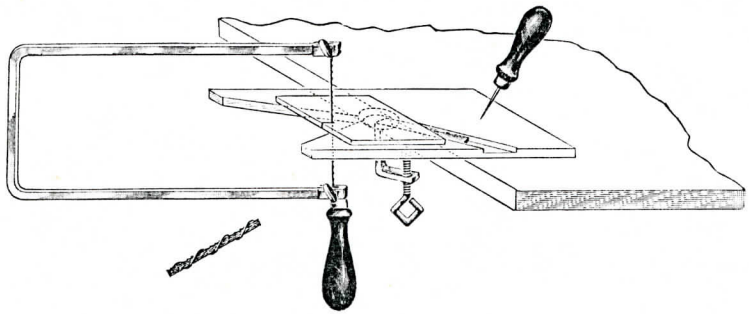
No. 65

The same as No. 60, but 6$\frac{1}{2}$ inches long.
Price, per gross, **$5.50.**

★ NEW TOOL ★

FRET SAW SET

No. 427



A most practical outfit, combining the essentials for good fret sawing.

Frame of white nickeled spring steel, 12 inches deep.

Handle of hardwood, with mahogany enamel finish.

Slotted wood table with clamp to fasten to bench and to furnish support close to the sawing point.

Set also comprises 1 dozen saw blades, an awl, a sheet of assorted designs and a sheet of impression paper.

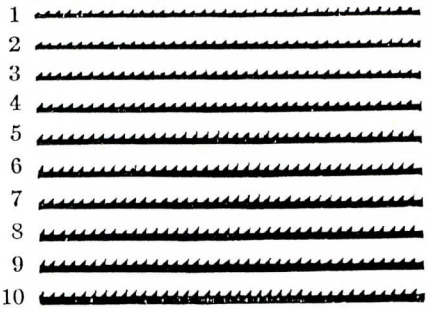
Weight, per dozen, with pasteboard boxes, 15½ lbs.

Price, per dozen, **$12.00.**

Packed 1 set in a pasteboard box.

STAR FRET ★ SAW BLADES

Are now demanded in quantities from most remote countries.
They have no equals for speed, durability, uniformity, and smoothness of work.



Nos. 000 to 6	. . . . .	per gross,		**$1.00**
" 7	. . . . .	"	"	**1.10**
" 8	. . . . .	"	"	**1.20**
" 9	. . . . .	"	"	**1.30**
" 10	. . . . .	"	"	**1.40**
" 11	. . . . .	"	"	**1.50**
" 12	. . . . .	"	"	**1.60**

Put up 1 gross each size in a package and 10 gross in a box.
Also put up 10 gross in a box, each gross assorted Nos. 1 to 6.

FRET SAW SETS

No. 1

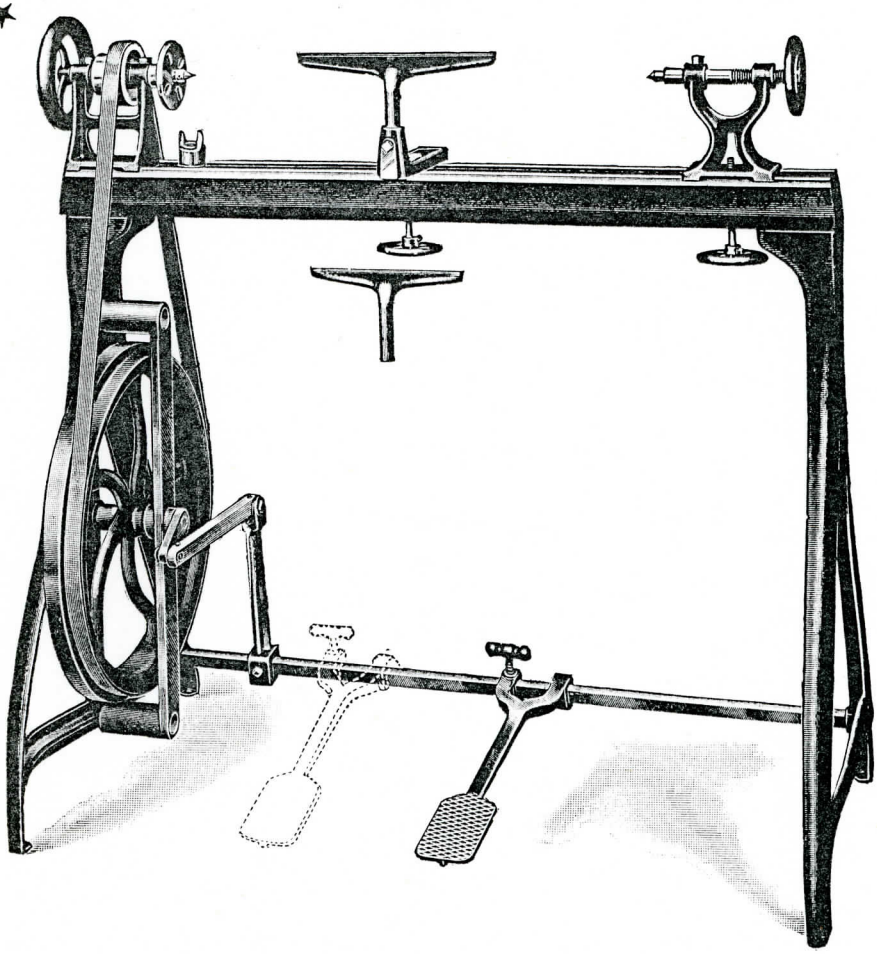
Spring steel frame, 12x5 inches, rough nickeled; japanned iron handle; patent clamps.
Also furnished with each frame: 12 saw blades, 1 awl, 1 sheet of impression paper, and 3 sheets of designs.
Weight, per dozen (with pasteboard boxes), 10½ lbs.
Price, per dozen, **$8.00.**
Packed 1 set in a pasteboard box.

No. 2

A superior spring steel frame, **POLISHED AND NICKELED,** 12x5 inches; enameled hardwood handle; patent clamps.
The same accessories as with No. 1 set.
Weight, per dozen (with pasteboard boxes), 13 lbs.
Price, per dozen, **$12.60.**
Packed 1 set in a pasteboard box.

★ NEW TOOL ★

LATHE
No. 417



For woodworking and light metals. Adapted for use where power is lacking but with heavy drive wheel to increase its range of work over what can be done with lighter lathes.

Drive wheel with two-step cone for one-inch belt with respective diameters of $18\frac{5}{8}$ and $19\frac{3}{4}$ inches.

Head stock also with two-step cone respectively $2\frac{3}{8}$ and $3\frac{1}{2}$ inches in diameter.

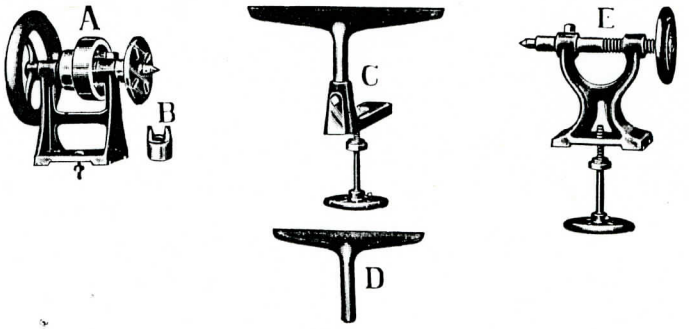
Machine is made from iron castings with steel spindles and adjustable bearings. Equipped with one spur center, two one-point centers, and a long and short tool rest with socket to attach to bed.

Swing of lathe, 10 inches; distance between centers, 40 inches; height from floor to top of bed, $35\frac{1}{4}$ inches; floor space, 43x23 inches; weight, crated, 200 lbs.; net, 175 lbs.

Price, each, **$31.50.**

Set up and packed in a wooden crate.

PRINCIPAL WORKING PARTS OF LATHE
No. 417

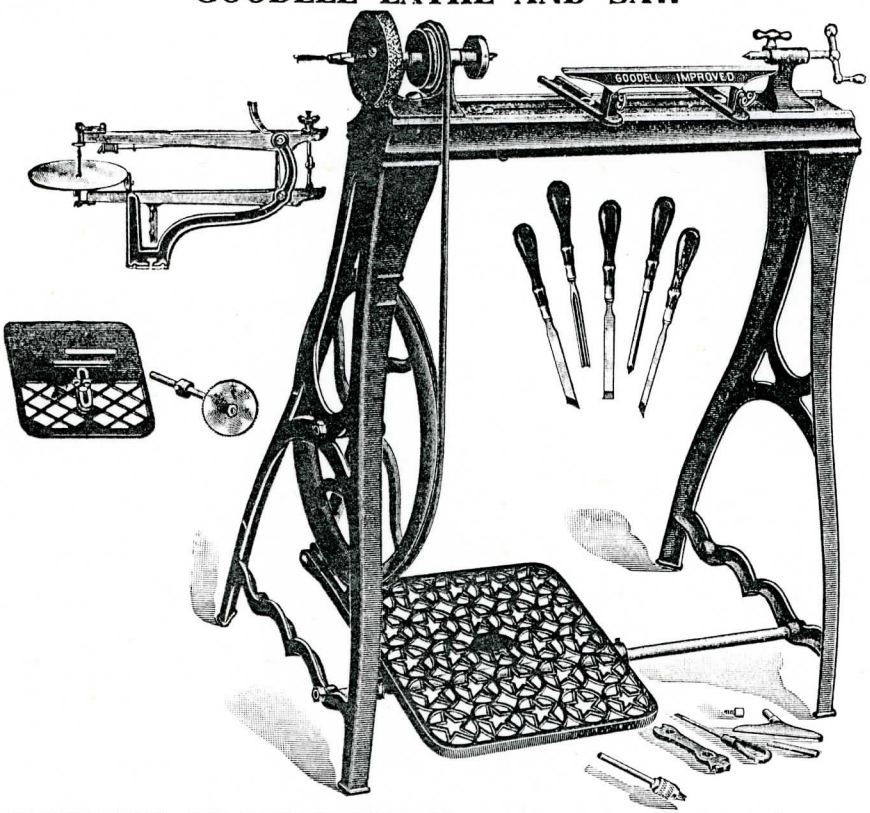


		Price, each
A	Headstock, complete	$5.00
B	Spur Center	.35
C	Long Rest with Socket and Clamp	1.25
D	Short Rest	.20
E	Tailstock, complete	3.00

COMPLETE LIST OF PARTS OF LATHE
No. 417

Bed	$2.60	Headstock Clamp Bolt	$0.05
Belt	2.90	Headstock Spindle	.90
Clamping Screw	.20	Headstock Spindle Collar	.10
Clamp Screw Collar	.10	Left Leg	2.60
Clamp Screw Wheel	.25	Long Rest	.25
Cone Pulley	1.55	Pitman Arm Casting	.45
Cone Pulley Blind Screw	.02	Pitman Arm Bolt	.05
Crank	.50	Pitman Arm Set Screw	.10
Crank Bolt	.05	Rest Socket	.50
Crank Pin	.02	Rest Socket Clamp Nut	.10
Drive Wheel	3.90	Rest Socket Set Screw	.10
Drive Wheel Arbor	.30	Right Leg	2.75
Drive Wheel Set Screw	.10	Right Leg Bolt	.05
Drive Wheel Arbor Support	1.55	Short Rest	.25
Drive Wheel Arbor Support Screw	.20	Spur Center	.45
Drive Wheel Arbor Support Screw Washer	.03	Tailstock	1.95
Face Plate	.50	Tailstock Adjusting Screw	.02
Feed Wheel	.25	Tailstock Spindle	1.00
Feed Wheel Set Screw	.02	Taper Center	.25
Fly Wheel	1.15	Treadle	.95
Fly Wheel Set Screw	.02	Treadle Binder Screw	.10
Headstock	2.00	Treadle Rod	2.40
Headstock Adjusting Screw	.02	Treadle Rod Cotter Pin	.01
		Wood Pitman	.10

GOODELL LATHE AND SAW

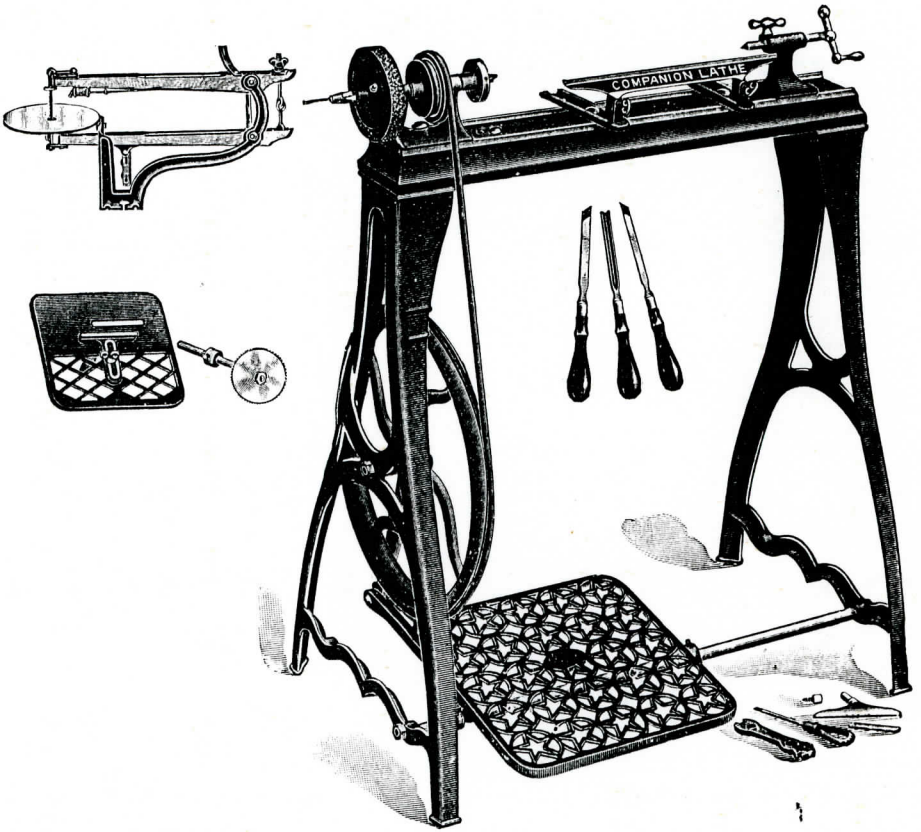


DRIVE WHEEL AND CONE PULLEY with two grooves to permit change of speed.
Accurate DRILL CHUCK holding from 0 to $\frac{1}{4}$ inch diameter round shank drills for boring in metal or wood.
LONG AND SHORT TOOL RESTS.
FIVE TURNING TOOLS, WRENCH AND DRILL POINTS, etc.
Lathe head with 2-inch FACE PLATE and SPUR CENTER and SCREW CENTER for turning cups.
EMERY WHEEL, 4 x $\frac{3}{4}$ inch.
DRILL SPINDLE WITH CHUCK for drill points for wood boring.
TAIL STOCK WITH SCREW FEED clamped at any point.
Swing of lathe, 5 inches; distance between centers, 13$\frac{1}{2}$ inches; distance of bed from floor, 27 inches; length of bed, 24 inches.
Fret sawing attachment, quickly attachable or detachable, with nickeled table, ash wood arms, dust blower, adjustable saw guide and lever, saw blades, designs, etc.
Circular saw attachment with saw table 6 x 7 inches, saw arbor, saw blade 3 inches in diameter, and straight edge guide.
The whole machine is thoroughly built and highly finished, polished parts being nickeled.

	Weight, Boxed	Weight, Net	Price.
Lathe and lathe tools, No. 317	71 lbs.	50 lbs.	**$13.00**
Lathe and fret saw attachment	78 lbs.	57 lbs.	**16.00**
Fret saw attachment, No. 318	16 lbs.	7 lbs.	**3.00**
Circular saw attachment, No. 319		3 lbs.	**1.25**

Knocked down and packed 1 machine in a wooden box.
IN ORDERING STATE WHETHER EITHER OR BOTH OF THE SAW ATTACHMENTS ARE WANTED.
For prices of parts see page 141.

COMPANION LATHE AND SAW ATTACHMENTS



The same as the Goodell machine, shown next preceding, except that it is not so highly finished, nor is drill chuck or more than three turning tools furnished.

	Weight Boxed	Net	Price
Lathe and lathe tools, No. 327	71 lbs.	50 lbs.	**$10.50**
Lathe and fret saw attachment	78 lbs.	57 lbs.	**13.50**
Fret saw attachment, No. 318	16 lbs.	7 lbs.	**3.00**
Circular saw attachment, No. 319		3 lbs.	**1.25**

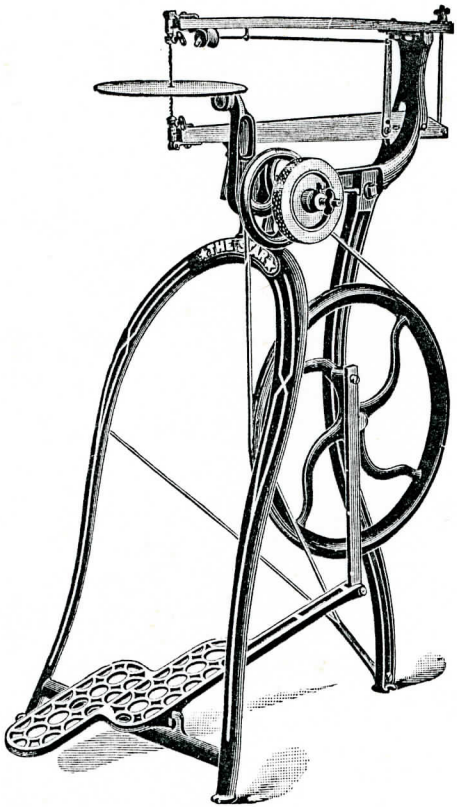
Knocked down and packed 1 machine in a wooden box.

IN ORDERING STATE WHETHER EITHER OR BOTH OF THE SAW ATTACHMENTS ARE WANTED.

For prices of parts see page 141.

THE STAR FRET SAW

No. 387



A well balanced, steady machine.

Iron castings japanned black and ornamented with red stripes; steel arbors.

HEAVY DRIVE WHEEL, giving power.

ARMS HUNG IN THE MIDDLE OF THEIR SUPPORTING CASTING to give free and easy motion; **ADJUSTABLE,** so may be kept parallel.

Two balance wheels, **ONE EACH OF IRON AND EMERY,** adding steadiness to the motion.

ADJUSTABLE CLAMPS FOR THE EMERY WHEEL, capable of embracing other sizes of emery and buffing wheels, grindstones, etc.

NICKELED TILTING SAW TABLE.

AUTOMATIC DUST BLOWER.

Lever saw clamps and adjustable saw guide.

Depth of arms, 18 inches.

Whole height of machine, 37 inches.

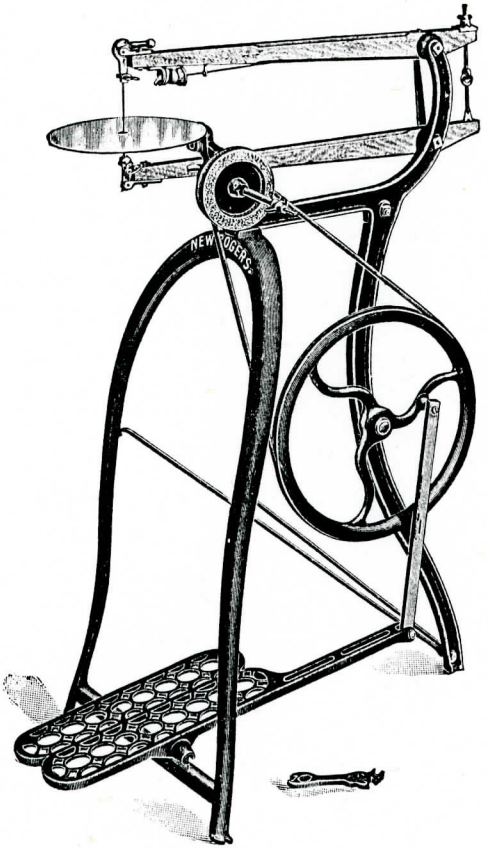
Weight, boxed, 60 lbs.; net, 40 lbs.

Price, **$8.50.**

Knocked down and packed 1 in a wooden box.

For prices of parts see page 140.

THE NEW ROGERS FRET SAW



Iron castings, japanned black with red and gilt stripes; steel arbors; arms and pitman of best selected ash wood.

BEARINGS TO THE ARMS CAREFULLY ADJUSTED.

AUTOMATIC DUST BLOWER.

JOINTED STRETCHER ROD, permitting free action of arms.

ADJUSTABLE LEVER SAW CLAMPS WITH HINGED JAW to overcome a disagreeable raking overthrow of the saw blades and to **PREVENT BREAKAGE OF BLADES.**

DRILLING ATTACHMENT on the right hand side of balance wheel.

Parts secured to each other by nicely fitting screws and bolts.

Each machine is **SET UP** and **RUN** and **CAREFULLY INSPECTED** before leaving our works.

Also furnished with each machine: 12 saw blades, 1 wrench, 3 sheets of designs, 1 awl, impression paper, and 3 drill points.

Height, 35 inches.

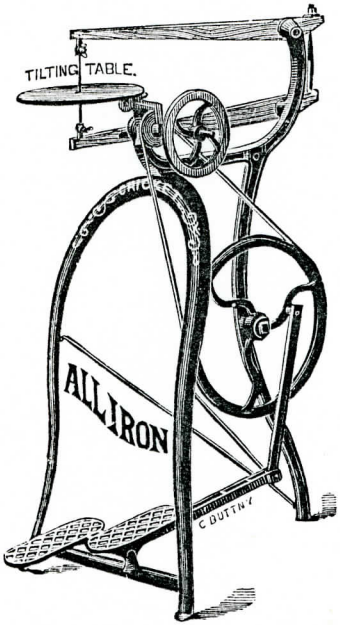
Weight, boxed, 45 lbs.; net, 28 lbs.

No. 1, with japanned tilting table and iron balance wheel, **$6.00.**

No. 2, with nickeled tilting table and emery balance wheel, **$6.50.**

Knocked down and packed 1 in a wooden box.

For prices of parts see page 141.



CRICKET SAW

Of the same general plan as other fret saw machines, shown preceding, except that it is made of lighter castings.

Height, 33 inches.

Weight, boxed, 35 lbs.; net, 17 lbs.

Knocked down and packed 1 in a wooden box.

Price, **$4.50.**

PARTS OF STAR FRET SAW AND PRICES

Arm Casting	$0.55
Arm Casting Adjustment, upper arm	.15
Arm Casting Adjustment, lower arm	.15
Arms, per pair	.45
Arm Pin	.02
Arm Bolt, 1x1¼ inch Round Head Car, Plated	.05
Back Leg	.80
Frame, to which Arm Casting is attached	.60
Balance Wheel	.65
Brace	.15
Brace Bolt, R. H. Stove $1\frac{1}{4}$x$\frac{3}{16}$ inch	.02
Blower, complete	.20
Blower Lever	.10
Belt	.30
Crank and Drill Spindle	.25
Crank Screw	.05
Clamps, upper and lower, complete	.40
Clamp Bolts, $1\frac{3}{8}$x$\frac{3}{16}$ inch R. H. Stove	.02
Drill Spindle, Wing Nut	.15
Drills, per dozen	.75
Drive Wheel	$1.85
Drive Pulley	.20
Drive Wheel Arbor, complete	.10
Emery Wheel	.40
Emery Wheel Arbor, complete	.25
Front Leg	1.30
Locking Bolt	.05
Pitman, Short	.05
Pitman Yoke Castings	.05
Pitman Bolt, R. H. Stove $\frac{13}{16}$x$\frac{3}{16}$ inch	.02
Pitman, Long	.05
Saw Guide	.15
Saw Guide Screw, $\frac{3}{8}$ inch No. 8 Machine Screw	.02
Saw Table, Plated	1.05
Saw Table Bolt, 1x$\frac{1}{4}$ inch R. H. Carriage	.02
Stretcher Rod, complete	.20
Treadle	.60
Treadle Caps, per pair	.10
Treadle Cap Screws, $\frac{1}{4}$x$\frac{3}{8}$ inch Blind Screws	.02
Treadle Bolt, $1\frac{1}{4}$x$\frac{7}{32}$ inch R. H. Stove	.02

ROGERS SAW REPAIRS

Arm Bolt	$0.02	Drive Wheel	$1.20
Arm Casting	.70	Front Leg	1.35
Arms, per pair	.45	Headless Screws	.02
Arm Spring	.10	Locking Bolt and Nut	.05
Back Leg	.60	Pitman	.05
Balance Wheel, Iron	.40	Pitman Screw	.05
Balance Wheel, Emery	.40	Pulley	.20
Belt	.30	Saw Guide	.10
Brace	.20	Stretcher	.20
Blower	.20	Stove Bolt	.02
Crank and Spindle	.20	Table, Nickel Plated	1.00
Crank Screw	.05	Table, Japanned	.40
Clamps, per pair	.40	Table Bolt	.03
Drill Nut	.15	Treadle	.70
Drive Wheel Bolt and Nut	.10	Wrench	.10

PRICES OF GOODELL & COMPANION LATHE PARTS

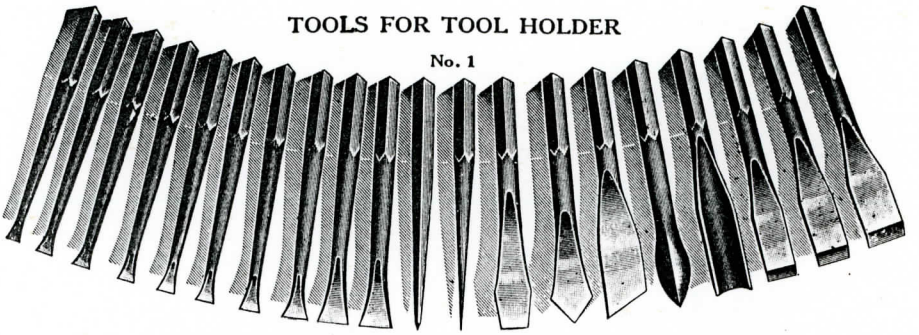
NAME OF PARTS.	Companion.	Goodell.
Lathe Bed	$1.40	$1.40
Legs ..... each (2)	1.40	1.40
Treadles	1.30	1.30
Treadle Rod	.35	.35
Treadle Caps ..... each (2)	.15	.15
Driving Wheel	1.80	1.80
Driving Wheel Bolt	.20	.20
Emery Wheel	.40	.40
Headstock	.40	.40
Headstock Spindle and Face Plate	.40	.40
Headstock Spindle Cone Pulley	.50	.60
Tailstock	.40	.40
Tailstock Spindle and Crank	.20	.55
Tailstock Spindle Binder	.15	.30
Long Rest	.20	.25
Short Rest	.10	.15
Rest Sockets ..... each (2)	.20	.20
Spur Center	.10	.10
Screw Center for Cups	.10	.10
Star Chucks	...	2.00
Saw Attachment Arm Casting	.80	.80
Arms ..... per pair	.50	.50
Table	1.00	1.00
Stretcher	.20	.20
Clamps ..... per pair	.40	.40
Bolts	.03	.03
Turning Tools ..... (5)	...	2.80
Turning Tools ..... (3)	2.00	...
Arm Bolts and Nuts	.10	.10
Belt	.30	.30
Drills ..... per dozen	.35	.35
Pitman, Long	.10	.10
Pitman, Short	.05	.05
Pitman Screws	.05	.05
Screw Driver	.20	.20
Blower	.20	.20
Table Bolt	.03	.03
Wrench	.10	.10
Saw Guide (New Pattern)	.15	.15
Arm Spring	.05	.05
Winged Drill Nut	.15	.15

TOOL HOLDERS

For illustrations of tools see page 143 and for general description see page 144.

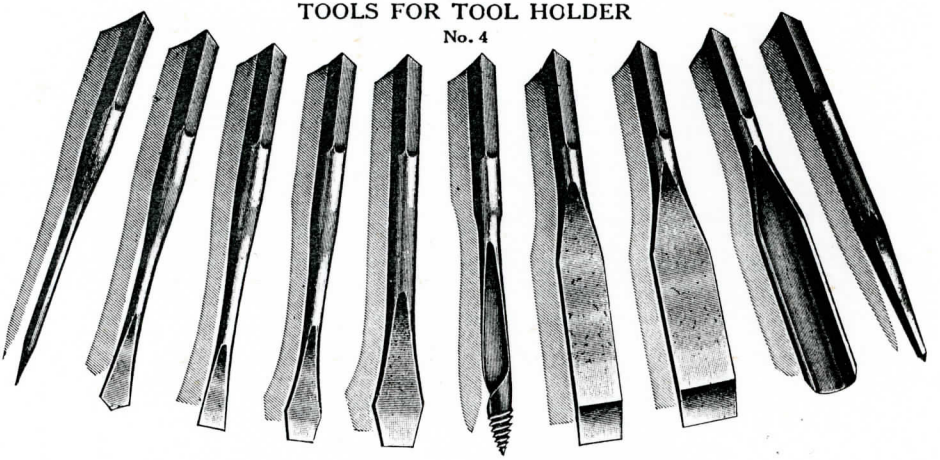
TOOLS FOR TOOL HOLDER

No. 1



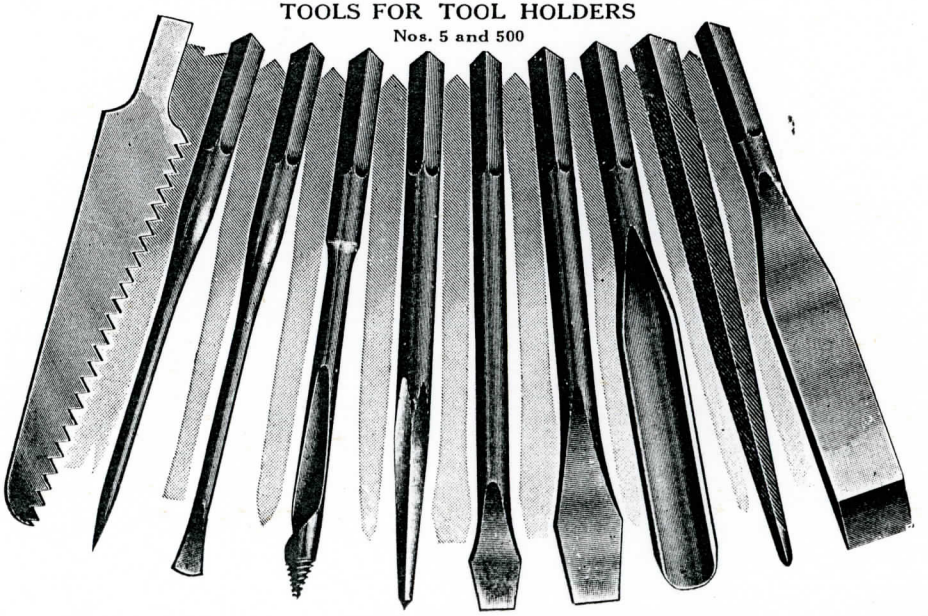
TOOLS FOR TOOL HOLDER

No. 4



TOOLS FOR TOOL HOLDERS

Nos. 5 and 500



TOOL HOLDERS

Nos. 1, 4, 5, and 6

For illustrations of handles and tools see pages 142 and 143.

BEAUTIFULLY POLISHED AND FINISHED RARE TROPICAL WOOD; HEAVILY NICKELED shell and jaws.

Hollow handle, containing tools, and closed with a screw cap.

Jaws holding WITH VISE-LIKE GRIP tools, as shown in preceding illustrations, also a variety of other kinds of shanks.

Socket and shell threads carefully cut so as TO MESH PERFECTLY AND PREVENT SHELL FROM WORKING LOOSE AND ALLOWING TOOLS TO DISENGAGE THEMSELVES FROM JAWS.

Tools made from best steel and CAREFULLY TEMPERED AND FINISHED AND HONED TO A FINE CUTTING EDGE.

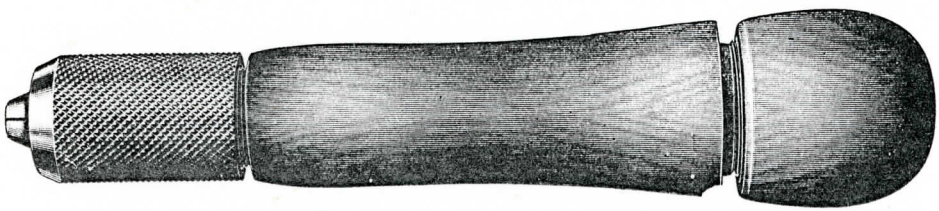
Nos.	1	4	5	6
Length of handle	6 in.	6¼ in.	7½ in.	4¾ in.
Number of tools	20	10	10	12
Length of tools	1¾ in.	2½ in.	4 in.	1¾ in.
Weight, per dozen (with pasteboard boxes)	5 lbs.	7 lbs.	11 lbs.	5 lbs.
Price, per dozen	**$12.00**	**$14.75**	**$19.00**	**$10.00**

Nos. 1 and 6 packed ½ dozen in a pasteboard box.

Nos. 4 and 5 packed 1 in a pasteboard box.

TOOL HOLDER

No. 500



The same as Tool Holder No. 5, described above, except that the handle is birch stained to imitate cocobolo and that the tools are polished without blue finish. The handle cap has no inserted metal plate.

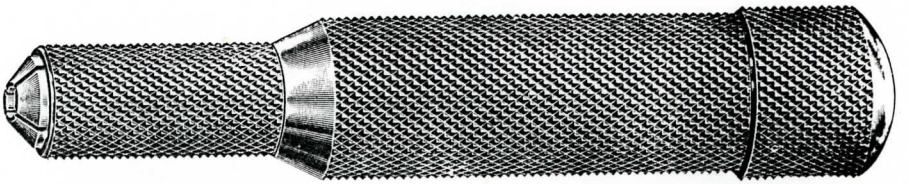
Weight, per dozen (with pasteboard boxes), 11 lbs.

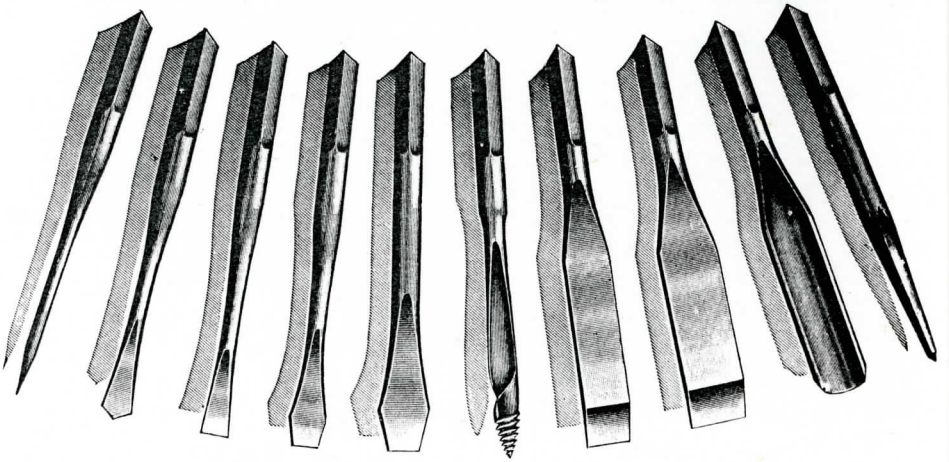
Price, per dozen, **$14.40.**

Packed ½ dozen in a pasteboard box.

TOOL HOLDER

No. 600

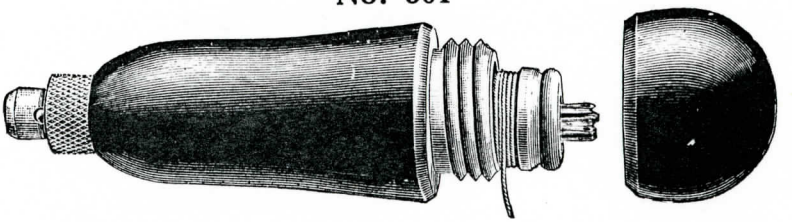




Handsomely knurled and nickeled **ALL STEEL HANDLE,** with hollow receptacle holding ten tools as shown in illustration above.
Chuck with hardened steel jaws clamping **WITH VISE LIKE GRIP** upon tool shanks.
Construction of steel enables handles to be made of small size and therefore a **CONVENIENT POCKET TOOL,** also of practically indestructible nature. It can be used for hammering small objects, such as tacks and nails.
Tools made of best steel, **CAREFULLY TEMPERED AND FINISHED AND HONED TO A FINE CUTTING EDGE.**
Length of handle, 5 in. Length of tools $2\frac{1}{4}$ in.
Weight, per dozen (with pasteboard boxes), $7\frac{1}{4}$ lbs.
Price, per dozen, **$12.00**
Packed 1 in a pasteboard box.

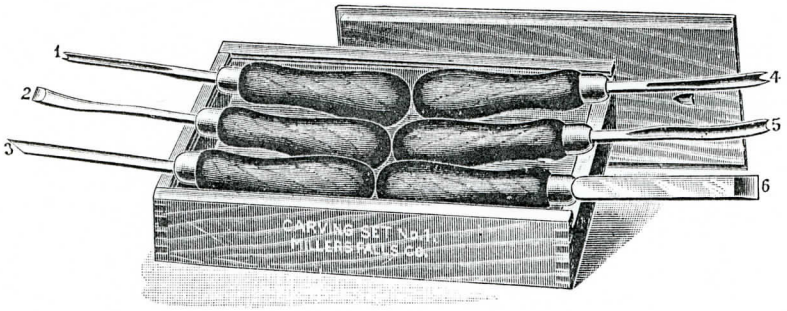
CRISPIN'S AWL

No. 501



Hollow, ebonized handle.
Contains, on a spool, 50 feet of best waxed shoe thread, 3 awls, and 5 needles of various shapes and sizes.
Length, 5 inches.
Weight, per dozen, 2 lbs.
Price, per dozen, **$4.60.**
Packed 1 dozen in a pasteboard box.

CARVING TOOL SET
No. 1



BLADES FORGED FROM STEEL OF THE HIGHEST QUALITY; FERRULES POLISHED AND NICKELED; HANDLES RARE TROPICAL WOOD.

Using numbers shown in illustration above, tools are as follows: No. 1, **U TOOL;** No. 2, **SCRAPER;** No. 3, **BEVELED CHISEL;** No. 4, **V TOOL;** No. 5, **CURVED GOUGE;** No. 6, **STRAIGHT CHISEL;** all sharpened for use.

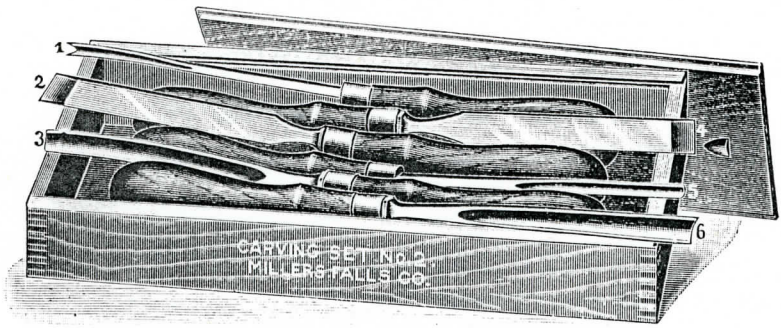
Length of tools, $5\frac{1}{2}$ inches.

Weight, per dozen (with wooden and pasteboard boxes), $7\frac{1}{2}$ lbs.

Price, per dozen, **$18.00.**

Packed 1 set in a wooden box, which is inclosed in a pasteboard carton.

CARVING TOOL SET
No. 2



The same material and finish as in Carving Tool Set No. 1, shown next preceding.

Using numbers shown in illustration above, tools are as follows: No. 1, **V TOOL;** No. 2, **BEVELED CHISEL;** No. 3, **CURVED GOUGE;** No. 4, **STRAIGHT CHISEL;** No. 5, **U TOOL;** No. 6, **STRAIGHT GOUGE.**

Length of tools, $8\frac{1}{2}$ inches.

Weight, per dozen (with wooden and pasteboard boxes), **11 lbs.**

Price, per dozen, **$25.50.**

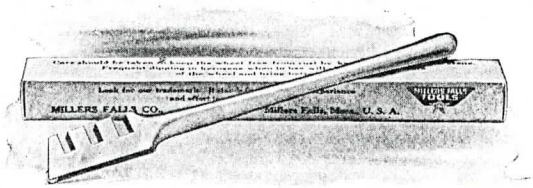
Packed 1 set in a wooden box, which is inclosed in a pasteboard carton.

CARVING TOOL SET
No. 3

Blades **FORGED FROM STEEL OF THE HIGHEST QUALITY;** ferrules **POLISHED AND NICKELED;** rare tropical wood handles of a serviceable shape.
Twelve carving tools and one matting tool, making a comprehensive set of shapes and especially adapted for manual training school use.
Hinged boxes, $9\frac{3}{4}$x$8\frac{1}{4}$ inches in size, when closed, and nicely finished; provided with clips to hold each tool in its place.
Length of tools, except matting tool, average $8\frac{1}{2}$ inches.
Weight, per set, with wooden and pasteboard boxes, $3\frac{1}{2}$ lbs.
Price, per set, **$6.50.**
Packed 1 set in a wooden box, which is inclosed in a pasteboard carton.

GLASS CUTTERS

Glass cutters have become some of our most prominent products. Their manufacture requires exact science in the choice of steel from which to make the cutting wheels and in hardening and tempering.



Every wheel must be ground and honed to a nicety with the right bevel and sharpness. We have acquired this science and method of making our glass cutters. Every wheel is subjected to two tests before being sent out.

Millers Falls glass cutter wheels are so hard and sharp that they require only the lightest pressure and give best results with such treatment. There is no skipping or uncertainty when using a Millers Falls glass cutter. Only M. F. "Perfect Cutting" wheels used.

A good feature is the manner of packing Millers Falls glass cutters. Each cutter is put into an individual carton as illustrated above. The cutter thus reaches the user in the same condition as when leaving the factory. Cartons are packed in a larger box as shown in second cut above. This larger box has a lift cover and the neat effect of the box may be maintained even though empty of some of its contents. Both large and small boxes are handsome in appearance and attractively labeled.

MILLERS FALLS GLASS CUTTERS

No. 0

Fancy tropical wood handle; loose iron head, as upon the ordinary diamond cutter; M. F. "PERFECT CUTTING" wheel, carefully tempered and ground with precision.

Weight, per gross, 10½ lbs.

Price, per gross, **$20.00.**

Packed 1 in a pasteboard box and 1 dozen boxes in a larger box.

No. 1

All iron, polished; M. F. "PERFECT CUTTING" wheel, scientifically tempered and ground.

Weight, per gross, 12½ lbs.

Price, per gross, **$17.00.**

Packed 1 in a pasteboard box and 1 dozen boxes in a larger box.

No. 5

Iron handle painted red; cutter head polished; one M. F. "PERFECT CUTTING" wheel.

Weight, per gross, 12 lbs.

Price, per gross, **$13.50.**

Packed 1 in a pasteboard box and 1 dozen boxes in a larger box.

No. 7

Iron handle painted red; cutter head polished; one M. F. "PERFECT CUTTING" wheel.

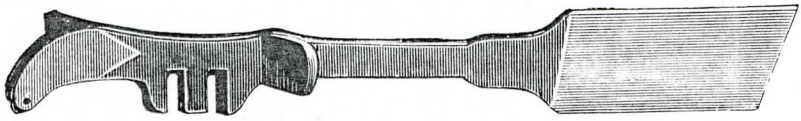
Weight, per gross, 10 lbs.

Price, per gross, **$12.00.**

Packed 1 in a pasteboard box and 1 dozen boxes in a larger box.

MILLERS FALLS GLASS CUTTERS—(Continued)

No. 13



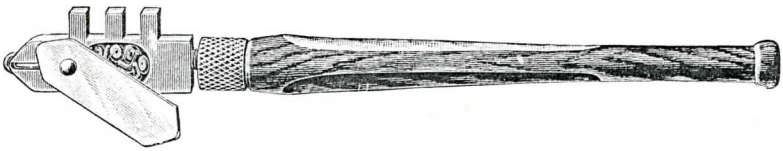
Iron handle with putty knife; one M. F. **" PERFECT CUTTING "** wheel.

Weight, per gross, $12\frac{3}{4}$ lbs.

Price, per gross, **$12.00.**

Packed 1 in a pasteboard box and 1 dozen boxes in a larger box.

No. 25



Fancy tropical wood handle; cutter head **POLISHED AND NICKELED.**

MAGAZINE in cutter head **CONTAINING EXTRA CUTTER WHEELS AND AXLES.**

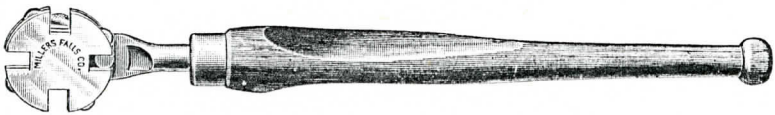
New wheels easily inserted at the working point.

Weight, per dozen, $1\frac{1}{4}$ lbs.

Price, per dozen, including 6 M. F. **" PERFECT CUTTING "** wheels and 4 axles, **$9.00.**

Packed 1 in a pasteboard box and 1 dozen boxes in a larger box.

No. 30



Fancy tropical wood handle; metal parts, excepting cutter wheels, **POLISHED.**

REVOLVING TURRET HEAD, loosened for turning and clamped fast by a thumb screw, and containing 4 M. F. **" PERFECT CUTTING "** wheels, as well as 4 milled notches to be used as breakers.

Weight, per dozen, $\frac{3}{4}$ lb.

Price, per dozen, **$3.75.**

Packed 1 in a pasteboard box and 1 dozen boxes in a larger box.

MILLERS FALLS GLASS CUTTERS—(Continued)

No. 31

Fancy tropical wood handle; metal parts, except cutter wheels, **POLISHED AND NICKELED.**

REVOLVING TURRET HEAD, shifted and clamped with a knurled thumb screw, and equipped with breakers.

One cutter wheel affixed to the head and extra wheels and axles in a **MAGAZINE** collar, which screws upon the handle.

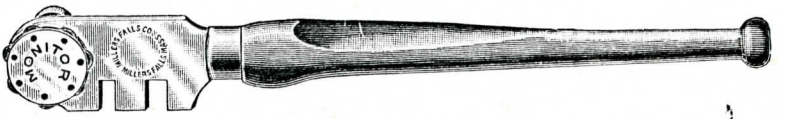
New wheels inserted into the turret head in a moment's time.

Weight, per dozen, 15 oz.

Price, per dozen, including 12 M. F. **" PERFECT CUTTING "** wheels and 3 axles with each tool, **$8.00.**

Packed 1 in a pasteboard box and 1 dozen boxes in a larger box.

No. 100



Polished and fancy tropical wood handle; head of **PRESSED STEEL; REVOLVING TURRET** of steel; both turret and head highly **POLISHED AND NICKELED; CUTTER WHEELS OF BEST QUALITY STEEL, SCIENTIFICALLY HARDENED AND CAREFULLY TESTED.**

Turret shifted by loosening a knurled **THUMB** screw, which also clamps it fast. This screw is **SLOTTED** so it may be operated by a **SCREW DRIVER** if desired.

Turret plate of thin stock, **PERMITTING THE CUTTER WHEEL TO BE OPERATED CLOSE TO CUTTING GUIDE.**

Seven M. F. **" PERFECT CUTTING "** wheels affixed to the turret; new ones inserted quickly and with ease; axles controlled by a device to prevent their falling out of place while new wheels are being inserted.

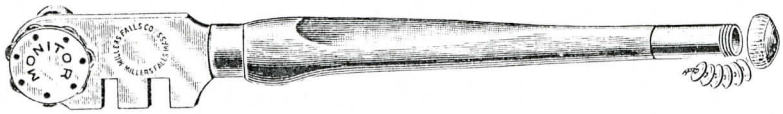
Weight, per dozen, 14 oz.

Price, per dozen, **$5.00.**

Packed 1 in a pasteboard box and 1 dozen boxes in a larger box.

MILLERS FALLS GLASS CUTTERS—(Continued)

No. 200



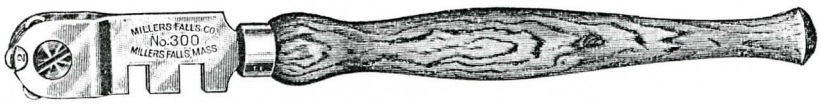
The same as Glass Cutter No. 100, shown next preceding, except that the handle end is provided with a **MAGAZINE** with screw cap, both of brass, nickel plated. Magazine **CONTAINS SIX EXTRA WHEELS** and the metal end may be used as a breaker.

Weight, per dozen, 1 lb.

Price, per dozen, including 13 M. F. **" PERFECT CUTTING "** wheels and 7 axles with each tool, **$7.25.**

Packed 1 in a pasteboard box and 1 dozen boxes in a larger box.

No. 300



NICKELED frame; fancy finished enameled wood handle of convenient shape to fit the fingers.

Six M. F. **" PERFECT CUTTING "** steel wheels set in a revolving turret, clamped in place by set screw.

Weight, per dozen, ½ lb.

Price, per dozen, **$3.60.**

Packed 1 in a pasteboard box and 1 dozen boxes in a larger box.

SPOKE SHAVE
No. 1

Metal parts **POLISHED AND NICKELED**; rare tropical wood handles.

Circular shape permitting the tool to work in small circles.

Knife so pitched that it cuts instead of scraping the grain of the wood.

Either handle removable for working in cramped quarters.

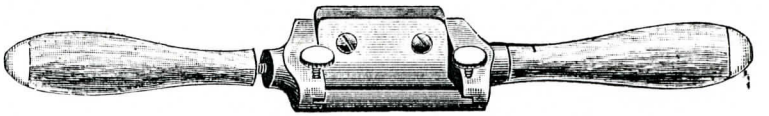
Length, 10 inches.

Weight, per dozen, 5½ lbs.

Price, per dozen, **$12.00.**

Packed ½ dozen in a pasteboard box.

FOUR FACED SPOKE SHAVE
No. 2



Rare tropical wood handles; metal parts **POLISHED AND NICKELED.**

Quickly **ADJUSTABLE THROAT REGULATOR,** which may be turned about to present **FOUR DIFFERENT FACES** to the knife; **ONE FLAT, TWO OVAL OR CONVEX, AND ONE CONCAVE.** Wide or narrow throat may be had.

Knife adjustable with set screws.

Either handle removable for working in narrow places.

Length of blade, 2 inches.

Length of whole tool, 11 inches.

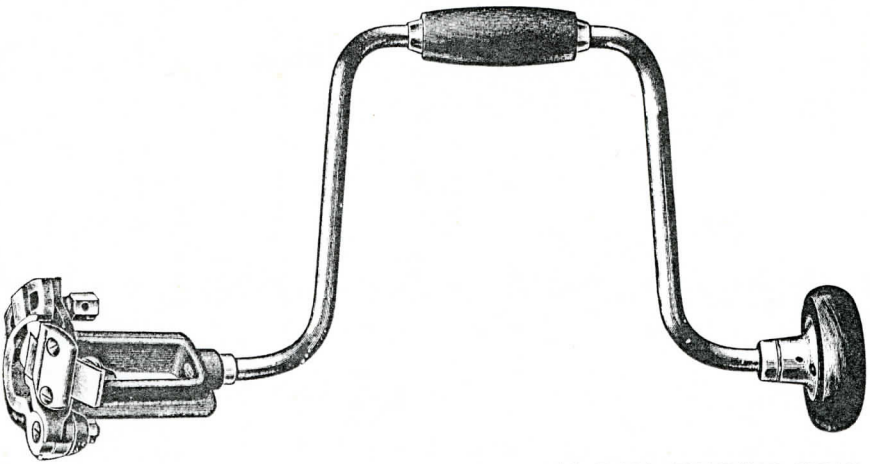
Weight, per dozen, 7 lbs.

Price, per dozen, **$16.00.**

Packed ½ dozen in a pasteboard box.

ADJUSTABLE HOLLOW AUGER

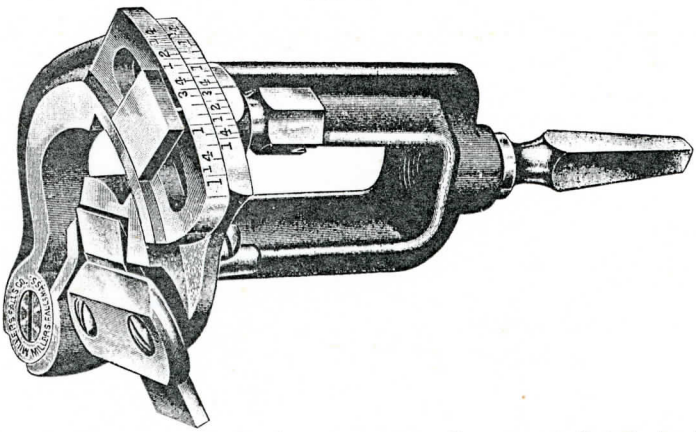
No. 2



A 14-inch sweep bit brace of our No. 10 pattern, with **BALL BEARING HEAD**, especially fitted to the auger, causing the latter always to work true.
Head castings of the auger made of iron, enameled black and red; steel adjusting screw; knife carefully tempered and sharpened.
Adjustable to cut tenons from $\frac{1}{4}$ to $1\frac{1}{4}$ inches, with a graduated index.
Stop gauge to regulate the length of tenons.
For details of mechanism see illustration next following.
Weight, per dozen (with pasteboard boxes), 43 lbs.
Price, per dozen, **$58.00.**
Packed $\frac{1}{6}$ dozen in a pasteboard box.

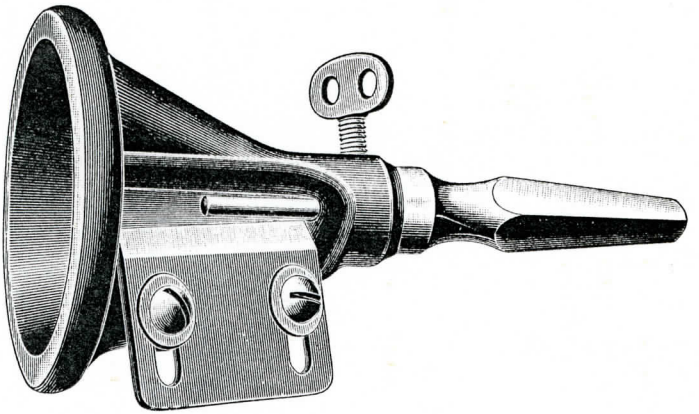
ADJUSTABLE HOLLOW AUGER

No. 3



The same as Hollow Auger No. 2, shown next preceding, except that, instead of a bit brace sweep, a bit stock shank is furnished to fit into the chuck of a bit brace.
Weight, per dozen (with pasteboard boxes), $22\frac{1}{2}$ lbs.
Price, per dozen, **$46.00.**
Packed 1 in a pasteboard box.

SPOKE TRIMMERS



Iron casting, exterior black enameled; steel bit shank, nickeled.

Adjustable knife, sharpened ready for use.

ADJUSTABLE STOP GAUGE clamped with a thumb screw.

Nos.	Capacity.	Weight per doz.	Price per doz.
101	Will cut round stock up to $1\frac{7}{8}$ inches	$9\frac{1}{2}$ lbs.	**$7.20**
	" " square " " " $1\frac{5}{8}$ "		
102	" " round " " " 3 "	20 lbs.	**$11.00**
	" " square " " " $2\frac{1}{8}$ "		

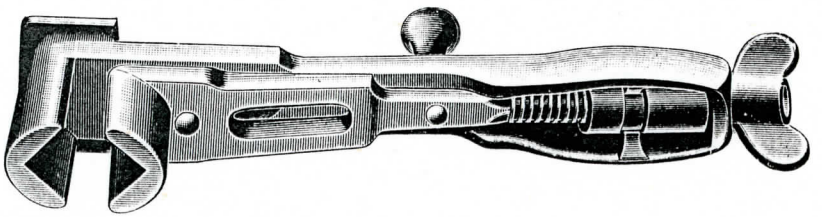
No. 101 will cut square stock up to $1\frac{7}{8}$ inches and No. 102 up to 3 inches, if the corners of the wood are first trimmed.

No. 101 packed $\frac{1}{4}$ dozen in a pasteboard box.

No. 102 packed $\frac{1}{6}$ dozen in a pasteboard box.

Note:—Furnished with $\frac{1}{2}$-inch round shank, when so ordered, without extra charge.

ADJUSTABLE WAGON WRENCH



Malleable iron; rough nickeled.

Tenacious grip; may be used as a hand vise.

Capacity up to nuts 2 inches square.

Knob on the back to be used as a crank in whirling nut on or off.

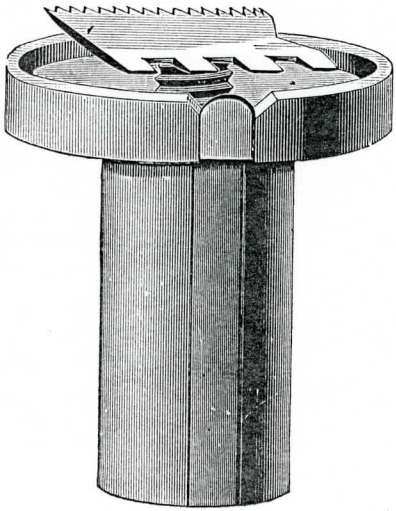
Weight, per dozen, 13 lbs.

Price, per dozen, **$4.00.**

Packed $\frac{1}{2}$ dozen in a pasteboard box

MILLERS FALLS BENCH HOOK

No. 55



NICKELED STEEL hook; inner surface of cup-shaped socket painted red and remainder of tool gray.

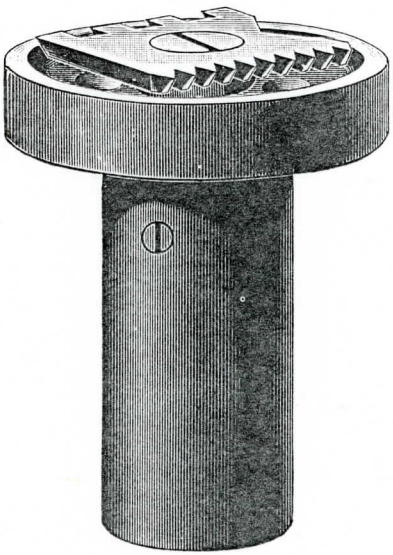
Hook has four faces and can be turned around readily and set at any height by means of a flat spring at side and coil spring beneath hook.

Upper part of socket 2 inches, and lower part 1 inch, in diameter.

Weight, per dozen, 7 lbs.

Price, per dozen, **$6.00.**

Packed ½ dozen in a pasteboard box.



MILLERS FALLS BENCH HOOK

No. 56

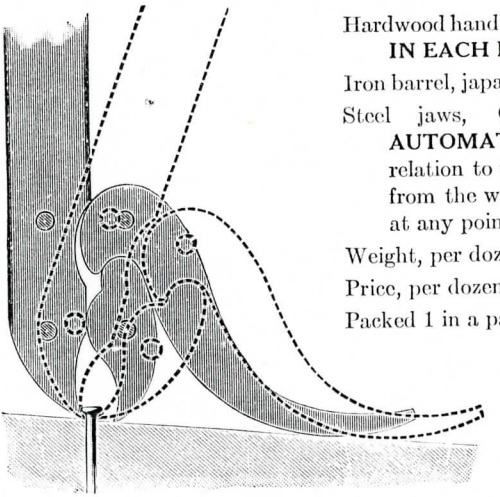
Same as No. 55, shown above, except that hook is adjusted and faced by means of a screw in its center.

Weight, per dozen, 8 lbs.

Price, per dozen, **$6.00.**

Packed ½ dozen in a pasteboard box.

MILLERS FALLS NAIL PULLER
No. 3



Hardwood handle with **STEEL RINGS INSERTED IN EACH END TO PREVENT SPLITTING.**

Iron barrel, japanned black. Polished steel plunger.

Steel jaws, **OPENING AND SHUTTING AUTOMATICALLY** owing to their peculiar relation to the foot or heel. Nails partly drawn from the wood may be gripped by these jaws at any point without slipping.

Weight, per dozen (with pasteboard boxes), 48 lbs.

Price, per dozen, **$12.00.**

Packed 1 in a pasteboard box and 2 dozen in a case.

NAIL PULLER
No. 46

Cast iron handle and barrel, japanned black.

STEEL PLUNGER.

JAWS OF STEEL DROP FORGED and with a **SHARP BITE.** Jaws are brought back into position for next plunge by means of a protected spring.

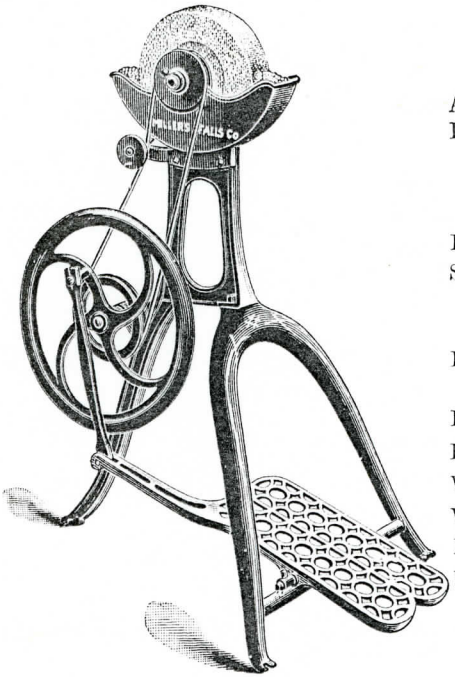
Weight, 4 lbs. 5 oz., makes this a powerful tool that may easily extract nails from hard or knotty wood.

Grips at any point nails that have been partly extracted.

Length, closed, 20½ inches; extended, 26 inches.

Price, per dozen, **$11.50.**

Packed 1 in a pasteboard box and 2 dozen in a case.



FAMILY GRINDSTONE

No. 2

Adapted especially for household purposes.

Iron castings, japanned black, ornamented with red stripes; stone of suitable grain and hung on a **STEEL ARBOR.**

Device for tightening the belt.

Stone runs in a trough and superfluous water is wiped from it by sponges in either end of the trough.

Foot power, with speeded drive and heavy drive wheel.

Dimensions of stone, 8x1¾ inches.

Height over all, 33 inches.

Weight, boxed, 66 lbs.

Weight, net, 43 lbs.

Price, each, **$7.00.**

Knocked down and packed 1 in a case.

GRINDSTONE

No. 3

Iron castings, japanned black, with red stripes; selected stone of suitable grain, hung on a **STEEL ARBOR.**

Foot or hand driven, with weighted crank to steady the motion and to help maintain velocity.

Superfluous water wiped from stone by a sponge in either end of the trough.

Rest attachment against which to hold tools while sharpening them.

Dimensions of stone, 14x1¾ inches.

Height over all, 38 inches.

Weight, boxed, 85 lbs.

Weight, net, 56 lbs.

Price, each, **$7.25.**

Knocked down and packed 1 in a wooden box.

GRINDSTONE

No. 4

Similar to Grindstone No. 3, shown next preceding, except that the stand has four legs to add to stability and, when desired, a 4x2 inch pulley for power drive is furnished.

Dimensions of stone, 14x1¾ inches.

Height over all, 39 inches.

Weight, boxed, 97 lbs.

Weight, net, 85 lbs.

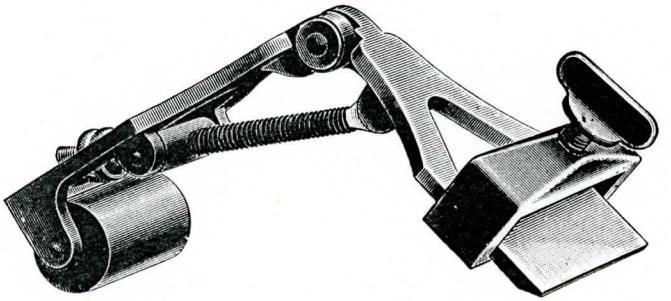
Price, without pulley, **$8.00.**

Price of pulley, **$0.65.**

Knocked down and packed 1 in a wooden box.

CHISEL GRINDER

No. 569



Cast iron, rough nickeled.

Adjustable to hold chisels, plane irons, etc., against grindstone at different bevels and enabling the user to obtain the **SAME BEVEL THE FULL WIDTH OF THE TOOL BEING GROUND.**

Roller bearing against grindstone.

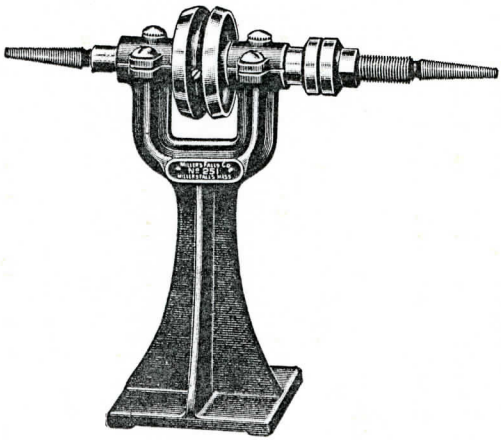
Weight, per dozen, 16 lbs.

Price, per dozen, **$10.00.**

Packed ¼ dozen in a pasteboard box.

POLISHING HEAD

No. 251



This tool is built on correct principles, and is made to take polishing and grinding wheels of a wide range of diameters and thicknesses.

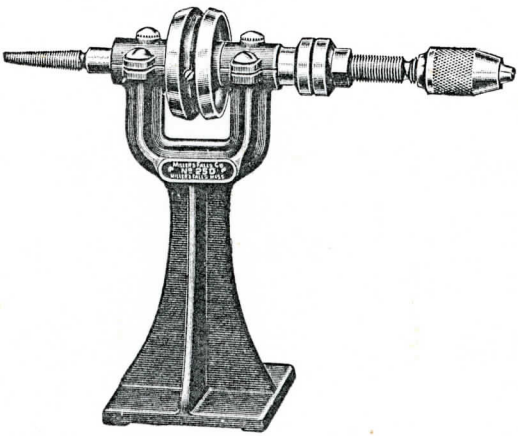
Solid iron frame, japanned black; steel pulleys with sides painted red; adjustable bearings with adjustable screws and oil caps of brass; other bright parts polished; spindle tapered on either end; flanges for wheels adjustable from 0 to $\frac{7}{8}$ inch and locked by hexagonal nut; pulley grooved for $\frac{1}{4}$ inch round belt or $\frac{3}{4}$ inch face may be used for flat belt; height to center of spindle, 6 inches; diameter of spindle, $\frac{7}{16}$ inch; diameter of pulley $1\frac{13}{16}$ inches. Weight, $2\frac{1}{4}$ lbs.

Price, each, **$1.50.**

Packed 1 in a pasteboard box.

POLISHING HEAD

No. 250



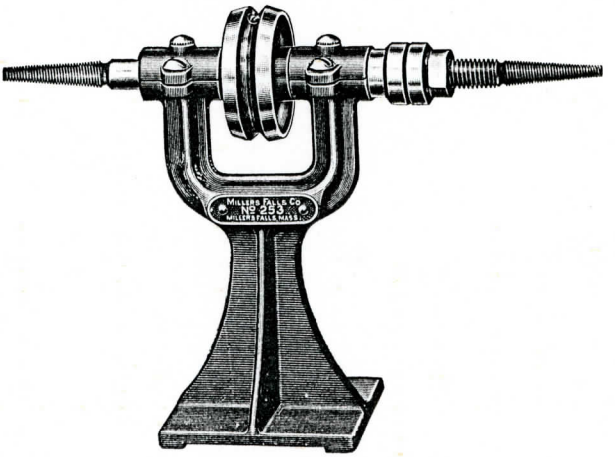
The same as No. 251, but with nickeled Star chuck added with capacity 0 to $\frac{3}{16}$ inch round shanks. The jaws in this chuck are actuated by springs that are protected from injury and will not get out of order.

Price, each, **$2.50.**

Packed 1 in a pasteboard box.

POLISHING HEAD

No. 253



This tool is built on the same lines as No. 251, but is larger and heavier.

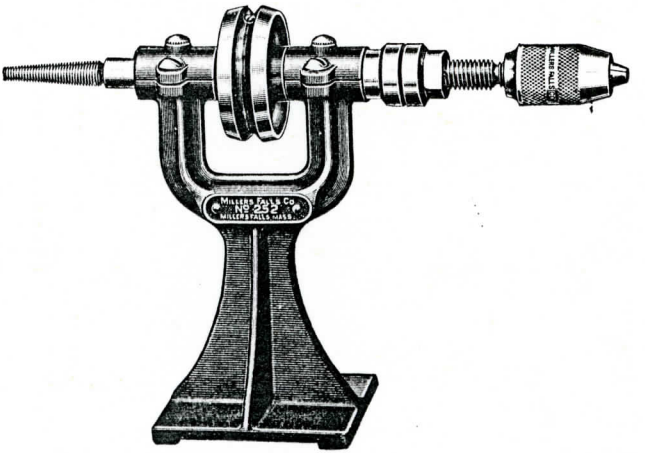
Height to center of spindle, 6 inches; diameter of spindle, ½ inch; diameter of pulley, 2¼ inches; weight, 3¼ lbs.

Price, each, **$2.50.**

Packed 1 in a pasteboard box.

POLISHING HEAD

No. 252



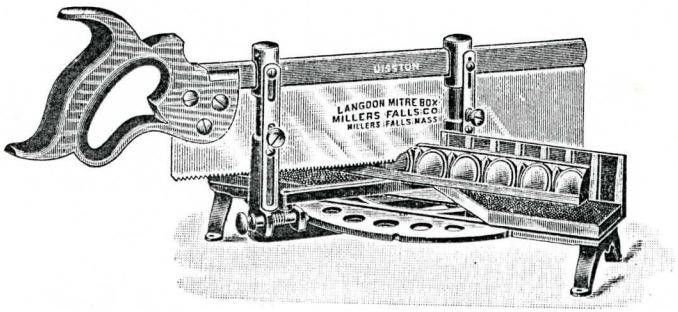
This is the same as No. 253, except that it is provided with Star chuck to hold round shank drills from 0 to ¼ inch in diameter. The jaws in this chuck are protected from injury and will not get out of order.

Price, each, **$4.00.**

Packed 1 in a pasteboard box.

LANGDON MITRE BOXES

Nos. $15\frac{1}{2}$ and $16\frac{1}{2}$



Easily portable and especially adapted to cutting mouldings and other light work.

Guaranteed accurate.

Saw supports may be quickly swung and clamped at any angle from 45° to 90° either right or left, notches being cut in the base plate at the angles most used.

Nos.	$15\frac{1}{2}$	$16\frac{1}{2}$
Size	C	B
Dimensions of saw	16x$2\frac{1}{2}$ in.	16x2 in.
Capacity at right angles	$4\frac{1}{2}$ in.	$4\frac{1}{2}$ in.
Capacity at mitre	3 in.	3 in.
Weight, boxed	14 lbs.	11 lbs.
Weight, net	8 lbs.	7 lbs.
Price	**$6.75**	**$5.75**

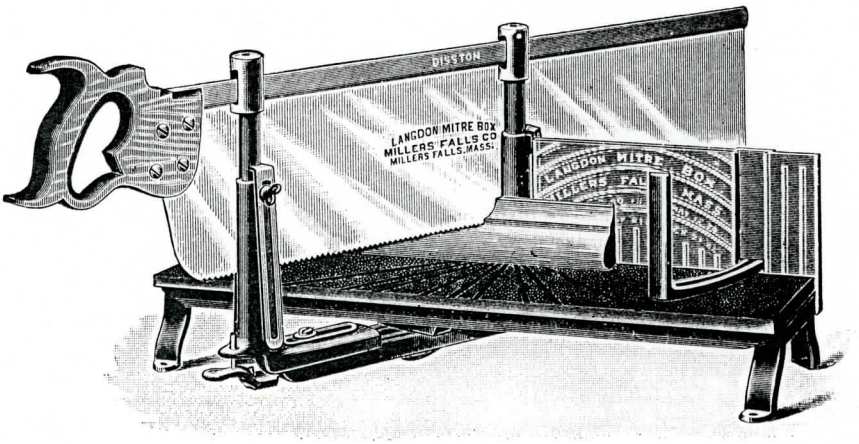
Prices of boxes without saws: Size C, **$4.50**; Size B, **$4.00.**

N. B.—Boxes are guaranteed only when supplied with back saws fitted to the boxes by ourselves.

No. $16\frac{1}{2}$ Box does not have the slotted elevators shown in illustration.

LANGDON MITRE BOXES

Nos. 15 and 16, Size 3



Especially for wide and deep material.

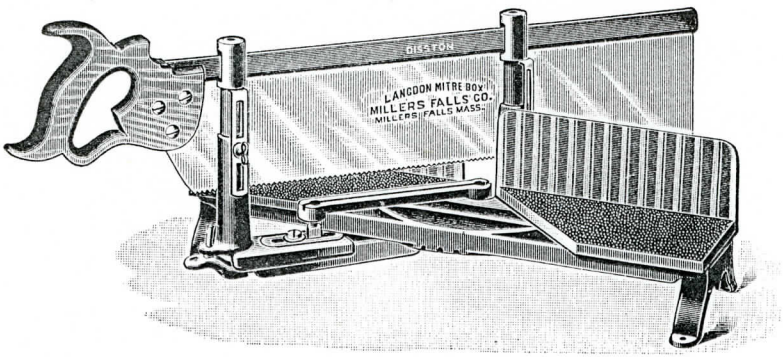
Saw supports may be swung and clamped at any angle from 45° to 90°, the circular arms, shown in the illustration, being used to extend the range beyond that just mentioned. Notches are cut in the base plate at the angles most used.

Nos.	15	16
Dimensions of saw	28 x 6 in.	30 x 6 in.
Capacity at right angles	12¾ in.	12¾ in.
Capacity at mitre	8⅜ in.	8⅜ in.
Weight, boxed	50 lbs.	53 lbs.
Weight, net	39 lbs.	40 lbs.
Price	**$23.00**	**$23.75**

Price, without saw, **$20.00.**

N. B.—Boxes are guaranteed only when supplied with back saws fitted to the boxes by ourselves.

NEW LANGDON MITRE BOXES



Guaranteed accurate when supplied with saws fitted by ourselves.

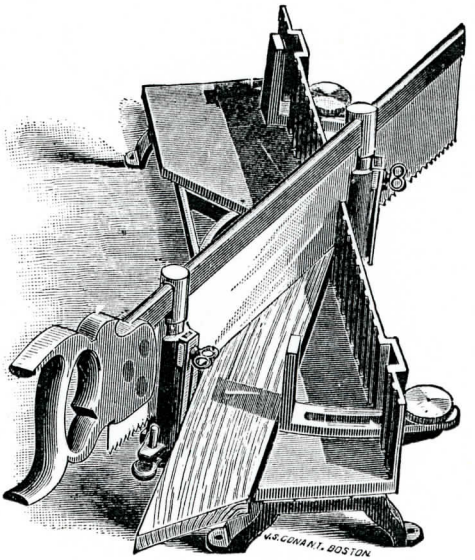
Iron castings, bronze enameled; bright parts nickeled; bottom boards sanded.

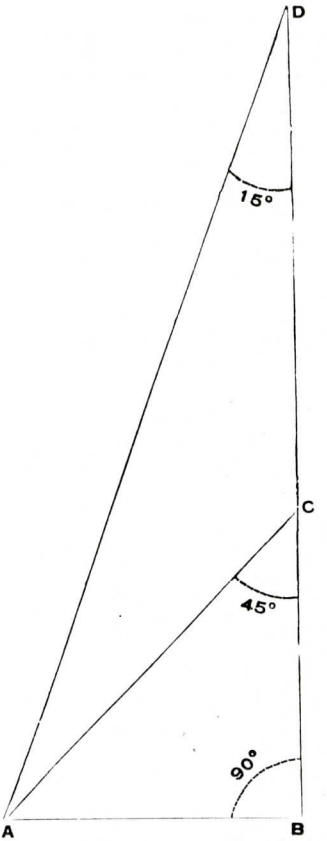
Equipped with depth gauges, front post extensible for stuff of varying widths, and gib (the casting directly beneath the saw) made to support the work to the end of the cut.

Saw supports quickly swung and clamped at any angle from 45° to 90° either to the right or the left, the angles most used being determined by notches cut into the base plate.

Nos.	Size.	Dimensions of Saw. Inches.	Capacity, at Right Angles. Inches.	Capacity, at Mitre. Inches.	Weight Boxed. Pounds.	Weight Net. Pounds.	Price.
17	1	18x4	$6\frac{3}{4}$	$4\frac{1}{2}$	24	14	**$3.00**
18	1	20x4	$6\frac{3}{4}$	$4\frac{1}{2}$	25	14	**8.50**
19	1	22x4	$6\frac{3}{4}$	$4\frac{1}{2}$	26	$14\frac{1}{2}$	**9.00**
20	1	24x4	$6\frac{3}{4}$	$4\frac{1}{2}$	$26\frac{1}{2}$	$14\frac{1}{2}$	**9.50**
21	1	26x4	$6\frac{3}{4}$	$4\frac{1}{2}$	27	15	**10.00**
22	2	22x4	$9\frac{3}{8}$	$6\frac{3}{8}$	$27\frac{1}{4}$	$15\frac{1}{2}$	**10.00**
23	2	24x4	$9\frac{3}{8}$	$6\frac{3}{8}$	$27\frac{1}{2}$	16	**10.50**
24	2	26x4	$9\frac{3}{8}$	$6\frac{3}{8}$	28	$16\frac{1}{2}$	**11.00**
25	$2\frac{1}{2}$	28x5	$9\frac{3}{8}$	$6\frac{3}{8}$	$30\frac{1}{2}$	18	**12.50**
			BOXES WITHOUT SAWS				
	1		$6\frac{3}{4}$	$4\frac{1}{2}$	$20\frac{1}{2}$	$12\frac{1}{2}$	**$6.50**
	2		$9\frac{3}{8}$	$6\frac{3}{8}$	22	14	**7.50**
	$2\frac{1}{2}$		$9\frac{3}{8}$	$6\frac{3}{8}$	26	18	**9.00**

NEW LANGDON MITRE BOX IMPROVED

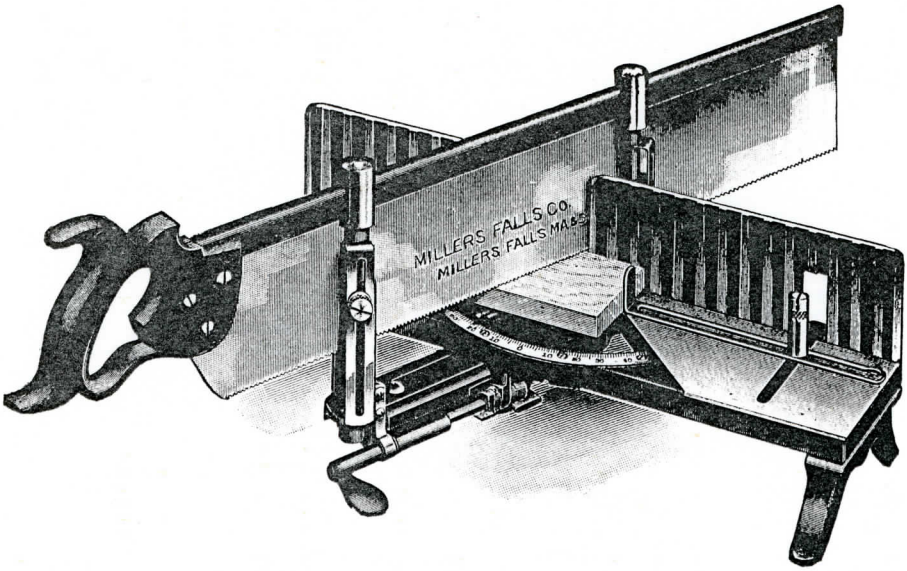




The same as the New Langdon Mitre Box, shown next preceding, except that it is equipped with circular arms, so that it may cut not only at all angles from 45° to 90°, as indicated in the diagram ABC, but also at all angles from 15° to 90°, on 2½-inch stuff, as shown by diagram ABD.

Nos.	Size.	Dimensions of Saw. Inches.	Capacity at Right Angles. Inches.	Capacity at Mitre. Inches.	Weight, Boxed. Pounds.	Weight, Net. Pounds.	Price.
26	1	18x4	6¼	4½	25	16	**$9.00**
27	1	20x4	6¼	4½	26	17	**9.50**
28	1	22x4	6¼	4½	27	17½	**10.00**
29	1	24x4	6¼	4½	28	18	**10.50**
30	1	26x4	6¼	4½	29	19	**11.00**
31	2	22x4	9⅜	6⅜	29	19½	**11.00**
32	2	24x4	9⅜	6⅜	29½	20	**11.50**
33	2	26x4	9⅜	6⅜	30	20½	**12.00**
34	2½	28x5	9⅜	6⅜	34	22	**13.50**
35	2½	30x5	9⅜	6⅜	35	22½	**14.00**
			BOXES WITHOUT SAWS				
	1		6¼	4½	21	13	**$7.50**
	2		9⅜	6⅜	22½	14½	**8.50**
	2½		9⅜	6⅜	26½	18½	**10.00**

THE LANGDON ACME MITRE BOX IMPROVED



Iron and steel castings, the main castings with bronze finish; bright parts nickeled.

EXTRA LONG SAW GUIDES TO GIVE STABILITY when the saw is raised to its highest point.

A simple and effective device **AUTOMATICALLY CATCHES THE SAW GUIDES AND HOLDS THEM SUSPENDED** when they are raised to their highest point and **RELEASES THEM INSTANTLY** when desired.

Notches in the bed plate to determine the positive angles most in use.

By the use of a thumb lever at the front of the box the saw supports may be swung freely and **LOCKED AT EITHER A POSITIVE OR AN INTERMEDIATE ANGLE.**

Guides to support the work against the back or to be used **WHEN ANGLES MORE ACUTE** than 45° are desired. These may be slid out of the way through little gateways in the back when not wanted.

An extension lever with a quick acting adjustment. (Size 1 box does not have an extension lever.)

A length gauge for duplicate lengths.

Steel bottom boards roughened to prevent the work from slipping.

A graduated arc upon the bed and an index plate to tell at what degrees to set the saw for certain desired cuts.

Depth gauge and take-up in case of wear upon the saw.

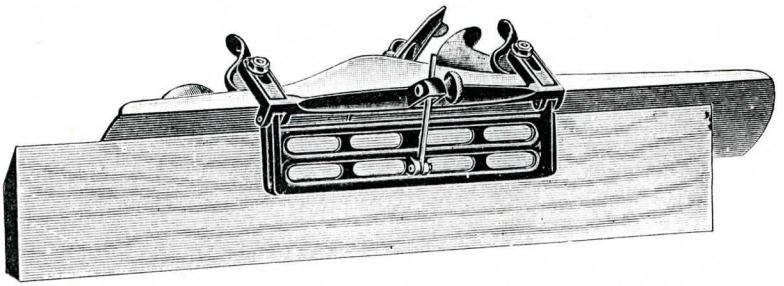
THE LANGDON ACME MITRE BOX—(Continued)

Nos.	Size.	Dimensions of Saw. Inches.	Capacity at Right Angles. Inches.	Capacity at Mitre. Inches.	Weight, Boxed. Pounds.	Weight, Net. Pounds.	Price.
68	1	22x4	$7\frac{1}{2}$	5	34	23	**$12.00**
69	1	24x4	$7\frac{1}{2}$	5	35	$23\frac{1}{2}$	**12.50**
70	1	26x4	$7\frac{1}{2}$	5	36	24	**13.00**
71	2	22x4	$10\frac{1}{4}$	7	34	23	**13.00**
72	2	24x4	$10\frac{1}{4}$	7	35	$23\frac{1}{2}$	**13.50**
73	2	26x4	$10\frac{1}{4}$	7	36	24	**14.00**
74	$2\frac{1}{2}$	28x5	$10\frac{1}{4}$	7	37	25	**15.50**
75	$2\frac{1}{2}$	30x5	$10\frac{1}{4}$	7	38	$25\frac{1}{2}$	**16.00**
			BOXES WITHOUT SAWS				
	1		$7\frac{1}{2}$	5	26	20	**$9.50**
	2		$10\frac{1}{4}$	7	26	21	**10.50**
	$2\frac{1}{2}$		$10\frac{1}{4}$	7	27	22	**11.50**

All our mitre boxes are provided with saws made for us only by Henry Disston & Sons, Limited.

THE PERFECTION JOINTER GAUGE

No. 88



Made of iron, black enameled, except some of the smaller parts, which are polished and nickeled.

Instantly attachable to iron planes of all sizes by adjustable cams and to wood planes with ordinary wood screws.

May be adjusted for planing square or on a bevel.

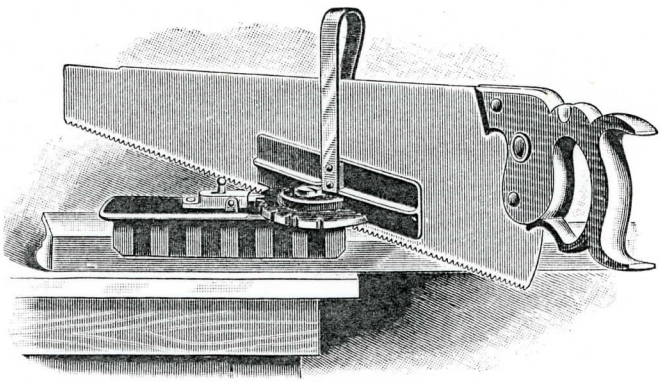
Weight, per dozen (with pasteboard boxes), 26 lbs.

Price, per dozen, **$22.00.**

Packed 1 in a pasteboard box.

THE STAR MITRE BOX

No. 40



Iron and steel; bright parts nickeled and other parts japanned black.

Especially useful in places where it is impracticable to use a larger box, as for sawing moulding, cornices, etc., at the top of a ladder.

Bed plate with double shelf or rest, permitting the cut to be made at an angle either to the right or to the left.

Notches cut into the shifting arc determine the angles ordinarily used.

Adapted to either a panel or back saw.

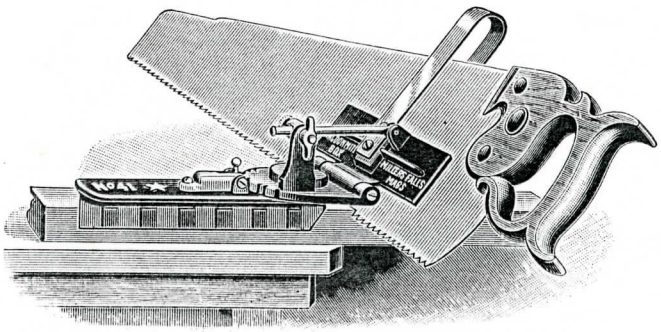
Weight, $2\frac{1}{4}$ lbs.

Price, **$2.30.**

Packed 1 in a pasteboard box.

THE STAR MITRE BOX

No. 41



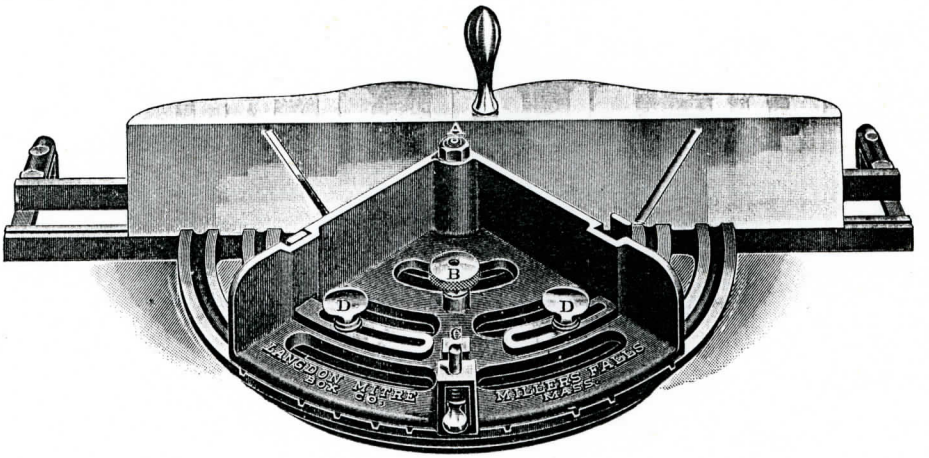
Similar to Mitre Box No. 40, shown next preceding, except that the saw clamp is attached to the rest of the tool by a hinge, which permits the saw to be tilted for cutting a wide range of bevels. This is of particular use in jointing floors.

Weight, $2\frac{1}{2}$ lbs.

Price, **$3.20.**

Packed 2 in a pasteboard box.

THE ROGERS' MITRE PLANER



Used extensively for picture framing.

Made entirely of iron, handsomely finished, for planing straight or curved work.

Principal parts: a semi-circular bed plate with a runway at the rear; a plane sliding upon this runway; and a quadrant swinging to right or left upon the bed plate with the point A, shown in illustration, as a pivot.

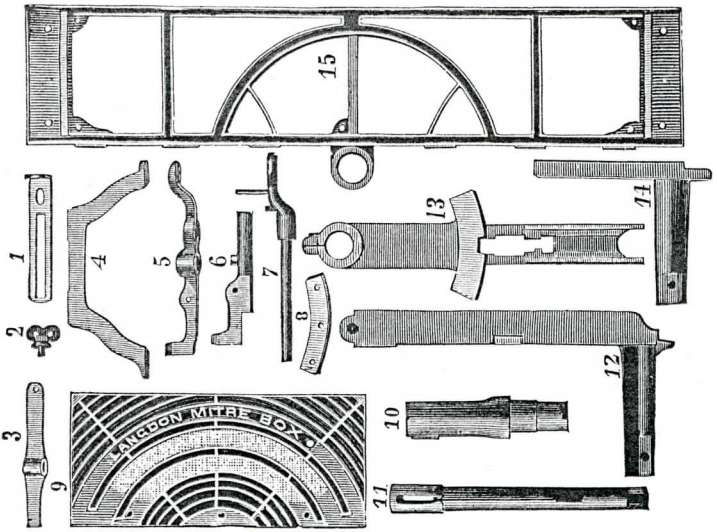
Quadrant clamped by catch C, shown in illustration, in notches in the bed plate at the angles most in use and at intermediate points by thumb screw B, also shown in illustration. When set in the middle of the bed plate, the side elevations of the quadrant form a perfect mitre for four sided work.

Adjustable arms, clamped with thumb screw DD, shown in illustration, of especial use in enabling one to finish the ends and angles on curved work with exactness. In preparing pieces for circular or oval work, frames, pulleys, emery wheels, circular patterns, etc., it is necessary to plane the ends of the various segments at varying angles. In planing these the point of the quadrant near the plane and the adjustable guides form the rest required for accurate work.

Size	2	3½	4
Width of knives	2 in.	3½ in.	4 in.
Weight, boxed	47 lbs.	73 lbs.	75 lbs.
Weight, net	32 lbs.	53 lbs.	55 lbs.
Price	**$26.00**	**$32.00**	**$38.00**

Extra plane knives, per pair: 2 in., **$3.40**; 3½ in., **$3.60**; 4 in., **$3.80.**

PARTS OF LANGDON MITRE BOX AND PRICES

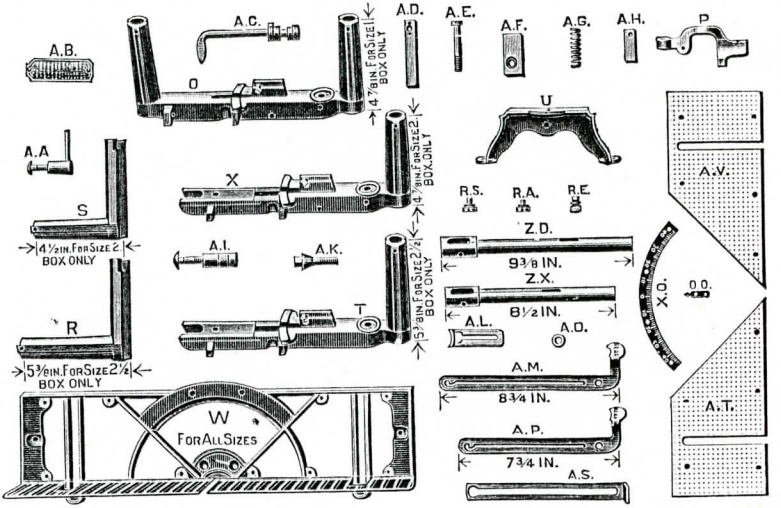


☞ In ordering backs (No. 9) please state whether a right or left hand back is wanted.

☞ Persons ordering parts of boxes will please state the number of the piece wanted and the size of the box for which it is designed.

NAME OF PARTS.	Mitre B. Size 1.	Mitre B. Size 2.	Mitre B. Size 2½.	Mitre B. Size 3.
1 Stop Gauge.....each	$0.05	$0.05	$0.10	$0.10
2 Thumb Screw..... "	.10	.10	.10	.10
3 Back Lever..... "	.20	.20	.20	.20
4 Legs..... "	.20	.20	.20	.25
5 Stop Lever..... "	.25	....	....	....
6 Stop Lever..... "	....	.30	.30	.35
7 Thumb Lever..... "	....	.25	.25	.25
8 Gib..... "	.15	.15	.15	.20
9 Back..... "	1.40	1.40	1.60	1.80
10 Back Post..... "	1.00	1.00	1.20	1.50
11 Saw Guides..... "	.60	.60	.60	.65
12 Swinging Lever..... "	1.40	....	....	....
13 Swinging Lever..... "	....	1.60	1.60	2.40
14 Sliding Post..... "	....	2.25	2.40	2.60
15 Bed..... "	3.00	3.00	3.00	3.70
Bottom Board..... "	.50	.50	.60	.70
Spiral Spring..... "	.05	.05	.05	.05
Screws..... "	.05	.05	.05	.05
Lever Pins..... "	.05	.05	.05	.05
Set Screw..... "	....	.10	.10	....

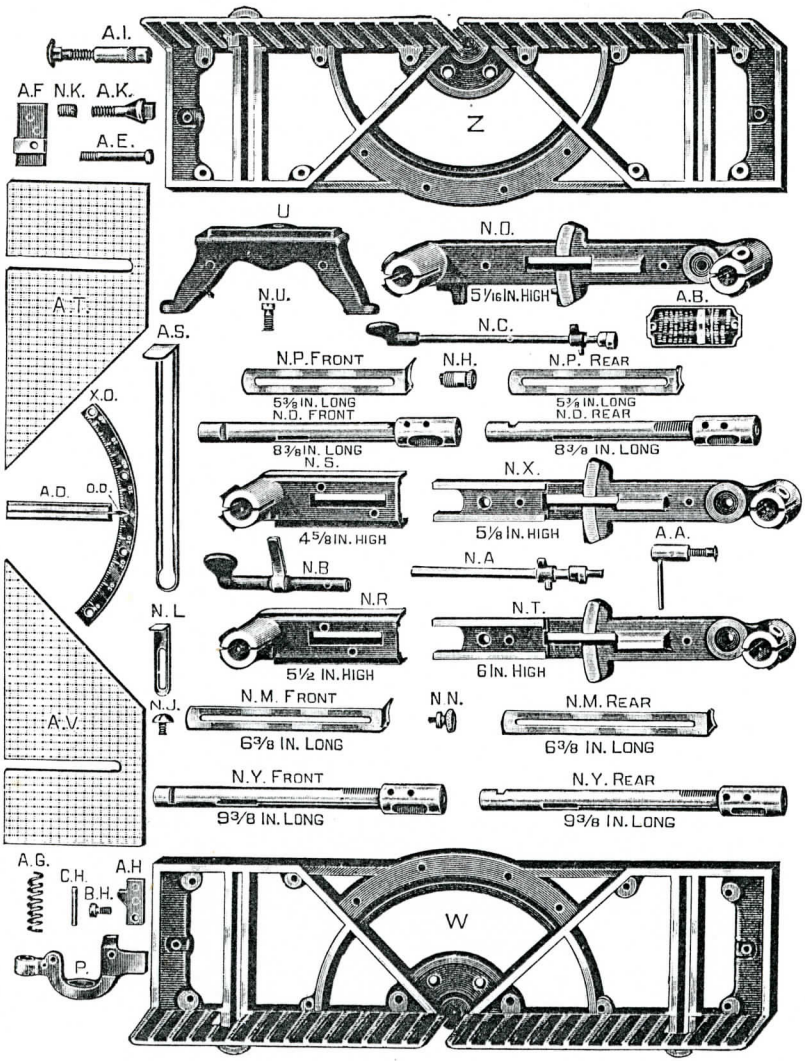
LIST OF PARTS OF LANGDON ACME MITRE BOXES AND PRICES



A. A.	Binder	for sizes 2 and 2½ box	$0.20
A. B.	Index Plate	" all sizes of boxes	.10
A. C.	Thumb Stop Lever	" " " "	.40
A. D.	Gib	" " " "	.35
A. E.	Gib Screw	" " " "	.10
A. F.	Binding Strap	" " " "	.15
A. G.	Spring	" " " "	.05
A. H.	Stop Lever Strap.	" " " "	.05
A. I.	Stock Rest	" " " "	.20
A. K.	King Bolt	" " " "	.10
A. L.	Guide Stop	" " " "	.05
A. M.	Elevator Bar	" size 2½ box	.25
A. O.	Washer	" all sizes of boxes	.05
A. P.	Elevator Bar	" sizes 1 and 2 box	.20
A. S.	Length Gauge	" all sizes of boxes	.15
A. T.	Right Hand Bottom Board	" " " "	.75
A. V.	Left " " "	" " " "	.75
O.	Swinging Lever	" size 1 box	1.70
O. O.	Indicator	" all sizes of boxes	.05
P.	Stop Lever	" " " "	.20
R.	Sliding Front Post	" size 2½ box	.80
R. A.	Guide Stop Screw—Rear	" all sizes of boxes	.10
R. E.	Elevator Stop Screw	" " " "	.10
R. S.	Guide Stop Screw—Front	" sizes 2 and 2½ box	.10
S.	Sliding Front Post	" size 2 box	.75
T.	Swinging Lever	" " 2½ box	1.60
U.	Leg	" all sizes of boxes	.20
W.	Bed and Back	" size 2½ box	2.55
X.	Swinging Lever	" " 2 box	1.60
X. O.	Graduated Arc	" all sizes of boxes	.60
Z. D.	Saw Guide	" size 2½ box	.60
Z. X.	Saw Guide	" sizes 1 and 2 box	.60
Z.	Bed and Back	" " 1 and 2 box	2.55

Parts O, P, R, S, T, U, W, and X, have corresponding letters cast in them, so, if in doubt, reference may be made to the castings.

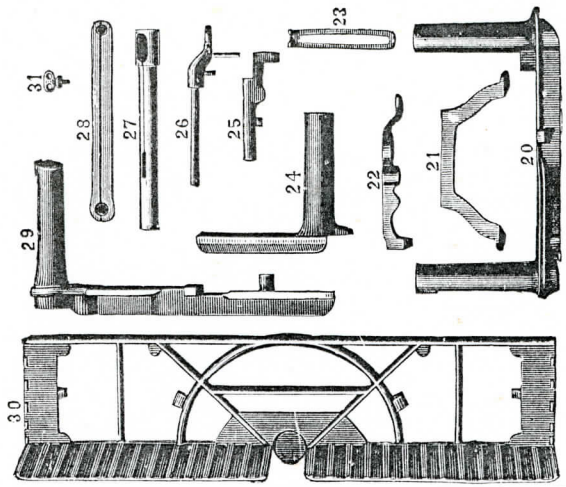
LIST OF PARTS OF IMPROVED LANGDON ACME MITRE BOXES AND PRICES



LIST OF PARTS OF IMPROVED LANGDON ACME MITRE BOXES

AA	Binder	for sizes 2 and 2½ box	$0.20
AB	Index Plate	" all sizes of boxes	.10
AD	Gib	" " " "	.35
AE	Gib Screw	" " " "	.10
AF	Binding Strap	" " " "	.15
AG	Spring	" " " "	.05
AH	Stop Lever Strap	" " " "	.05
AI	Stock Rest	" " " "	.20
AK	King Bolt	" " " "	.10
AS	Length Gauge	" " " "	.15
AT	Right Hand Bottom Board	" " " "	.75
AV	Left Hand Bottom Board	" " " "	.75
BH	Stop Lever Strap Screw	" " " "	.03
CH	Stop Lever Pin	" " " "	.02
NA	Stop Lever Rod	" sizes 2 and 2½ box	.20
NB	Thumb Lever	" " " " " "	.20
NC	Thumb Stop Lever	" size 1 box	.40
ND	Saw Guide Front and Rear	" sizes 1 and 2 box	.60
NH	Elevator	" all sizes of boxes	.35
NJ	Guide Stop Screw	" " " "	.05
NK	King Bolt Stop Screw	" " " "	.03
NL	Guide Stop	" " " "	.05
NM	Stop Gauge Front and Rear	" size 2½ box	.10
NN	Stop Gauge Thumb Screw	" all sizes of boxes	.10
NO	Swinging Lever	" size 1 box	1.70
NP	Stop Gauge Front and Rear	" sizes 1 and 2 box	.10
NR	Sliding Front Post	" size 2½ box	.80
NS	Sliding Front Post	" " 2 box	.75
NT	Swinging Lever	" " 2½ box	1.60
NU	Leg Screw	" all sizes of boxes	.03
NX	Swinging Lever	" size 2 box	1.60
NY	Saw Guide Front and Rear	" " 2½ box	.60
OO	Indicator	" all sizes of boxes	.05
P	Stop Lever	" " " "	.20
U	Leg	" " " "	.20
W	Bed and Back	" size 2½ box	3.35
XO	Graduated Arc	" all sizes of boxes	.60
Z	Bed and Back	" size 1 and 2 box	3.35

Parts NO, P, NR, NS, NT, U, W, NX and Z have corresponding letters cast in them, so, if in doubt, reference may be made to the castings.

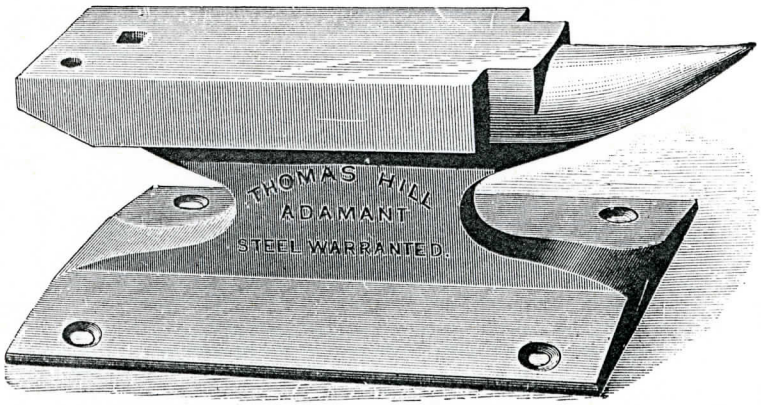


PARTS OF NEW LANGDON AND IMPROVED NEW LANGDON MITRE BOXES

Persons ordering parts will please state the number of the piece wanted and the size of the box for which it is designed. Or if the letters A, B, C, etc., which may be found on the larger castings, are mentioned, they will enable us to determine just what is wanted without further description.

NAME OF PARTS.		Size 1.	Size 2.	Size 2½.	Size 3.
20 Swinging Lever	each	$1.60	...	...	...
21 Legs	"	.20	$0.20	$0.20	...
22 Stop Lever	"	.20	...	...	...
23 Stop Gauge	"	.05	.05	.05	...
24 Sliding Post	"	...	.70	.70	...
25 Stop Lever	"	...	.20	.20	...
26 Thumb Lever	"	...	.20	.20	...
27 Guide	"	.60	.60	.60	...
28 Gib	"	.40	.40	.40	...
29 Swinging Lever	"	...	1.20	1.40	...
30 Bed and Back	"	2.20	2.20	2.20	...
31 Thumb Screw	"	.05	.05	.05	...
Circular Arms for Improved Box	"	.20	.20	.20	$0.25
Thumb Screws for Circular Arms	"	.10	.10	.10	.10

HILL'S SOLID STEEL ANVILS



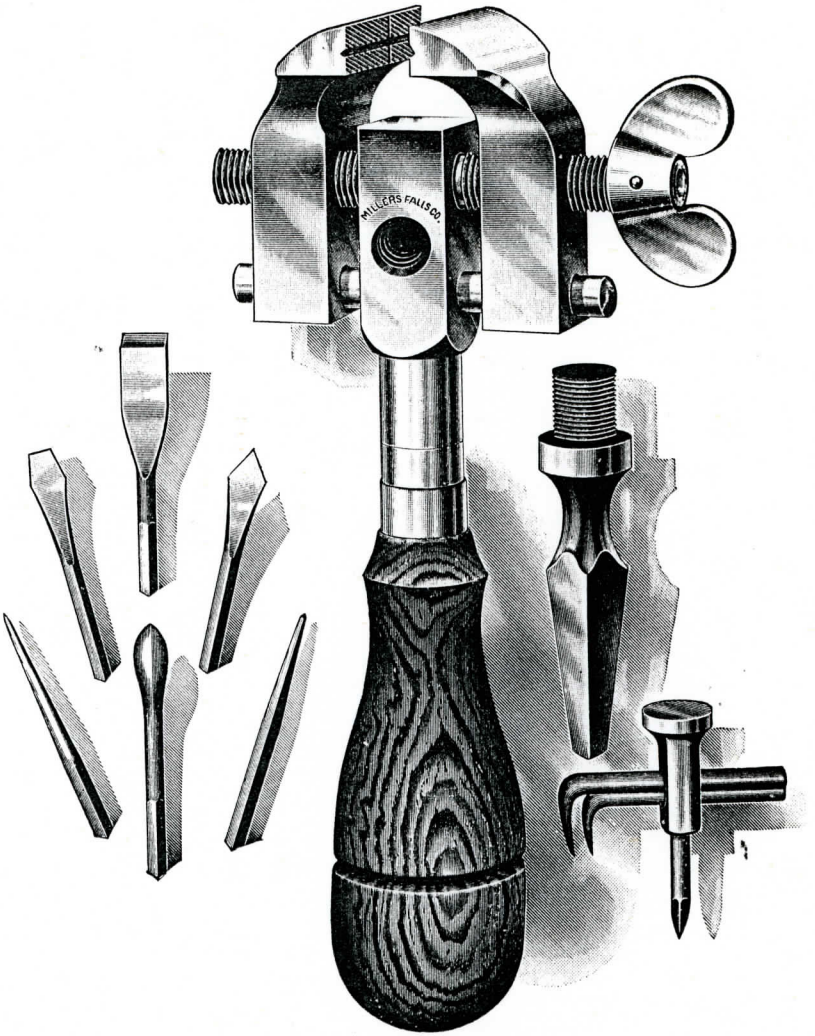
FORGED FROM SOLID STEEL WITH A TEMPER BEST ADAPTED TO AN ANVIL.

Face, sides and horn polished; the base japanned black.
Length of horn two inches in addition to length stated below.

Nos.	1	2	3
Length	5 in.	6 in.	7 in.
Width	1½ in.	2 in.	2 in.
Weight	4 lbs.	5½ lbs.	9 lbs.
Price	$2.10	$2.70	$3.10

ALFORD HAND VISE

No. 1



Rare tropical wood handle; jaws of **FORGED AND TEMPERED STEEL;** screw of steel; exposed metal surfaces **POLISHED AND NICKELED.**

DETACHABLE, HOLLOW handle, with screw cap, containing chisel, screw driver, countersink, square reamer, brad awl, scratch awl, and washer cutter.

Handle may be screwed into the vise at right angles.

Bit shank to be screwed into the tool either in the position of the handle, as shown in the illustration, or at right angles, permitting the vise to be used in a bit brace.

Length, $6\frac{3}{4}$ inches.

Width of jaws, $1\frac{1}{4}$ inches.

Jaws open, 1 inch.

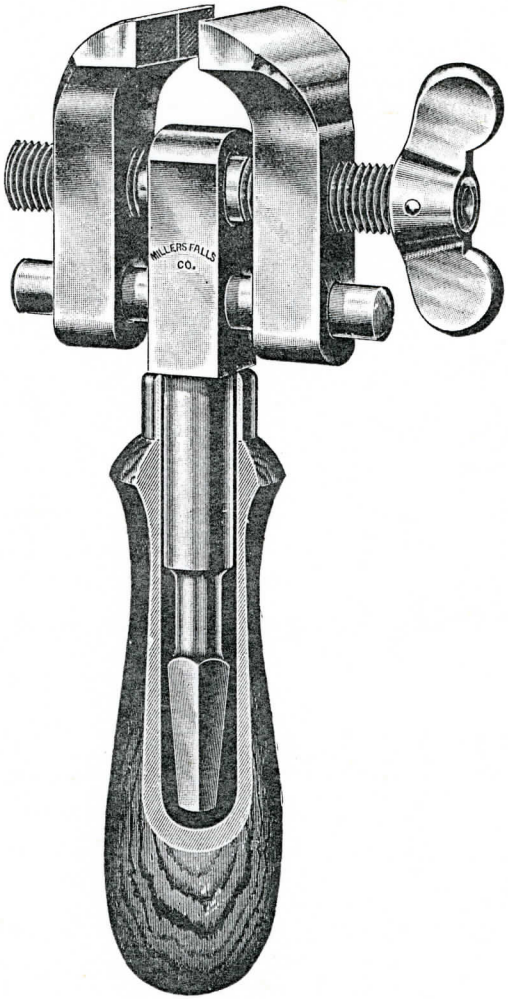
Weight, per dozen (with pasteboard boxes), 13 lbs.

Price, per dozen, **$27.50.**

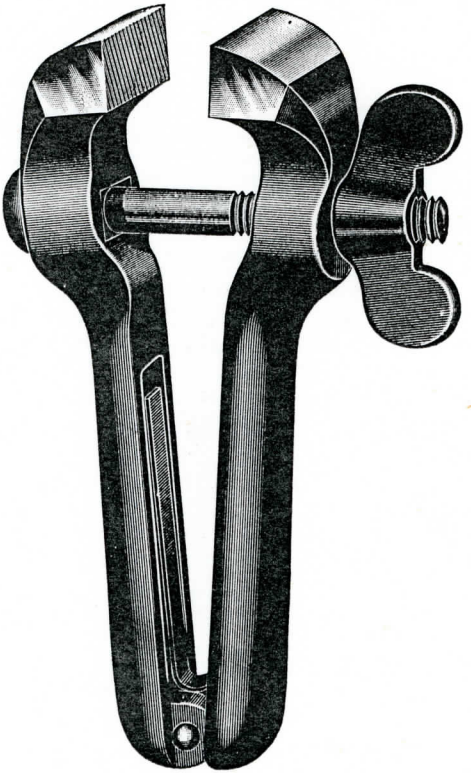
Packed 1 in a pasteboard box.

HAND VISE

No. 2



FORGED STEEL vise, **POLISHED AND NICKELED;** rare tropical wood handle.
Equipped with a bit stock shank for use in a bit brace after removing the **DETACHABLE HANDLE.**
Length, $6\frac{3}{4}$ inches.
Width of jaws, $1\frac{1}{2}$ inches.
Jaws open, $1\frac{1}{4}$ inches.
Diameter of screw, $\frac{1}{2}$ inch.
Weight, per dozen (with pasteboard boxes), $13\frac{1}{2}$ lbs.
Price, per dozen, **$23.00.**
Packed 1 in a pasteboard box.



HAND VISE

No. 3

Solid steel castings, well tempered, in black finish with polished jaws.

Jaws opened by a heavy spring and closed with a thumb nut and screw bolt.

Length, 5 inches.

Width of jaws, 1½ inches.

Jaws open, 1½ inches.

Weight, per dozen, 13½ lbs.

Price, per dozen, **$12.00.**

Packed 1 in a pasteboard box.

POWERS' WAGON JACK

Japanned black and ornamented red.

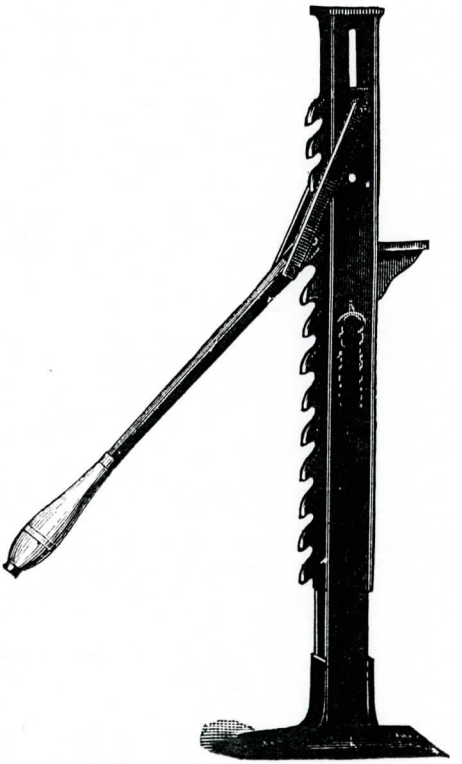
Side supports of wrought iron; foot piece, malleable iron; lift bar, cast iron.

When depressed, the lever is carried past center so as to be self-locking.

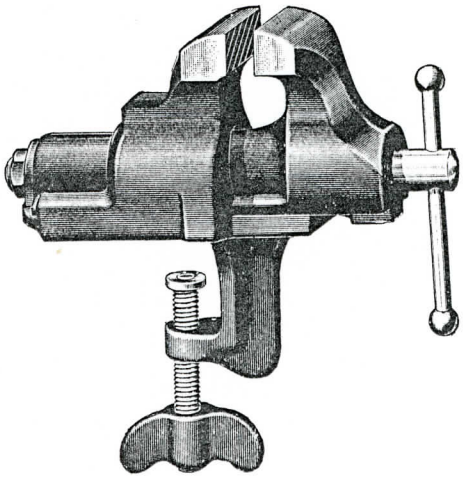
A very quick acting, durable jack.

Nos.....	1	2
Lift.....	12 to 32 in.	14 to 34 in
Length of lever...	13 in.	16 in.
Will raise..	1,000 lbs.	1,500 lbs.
Weight, per dozen..	155 lbs.	215 lbs.
Price, per dozen..	**$23.00**	**$35.00**

Packed 1 dozen in a case.



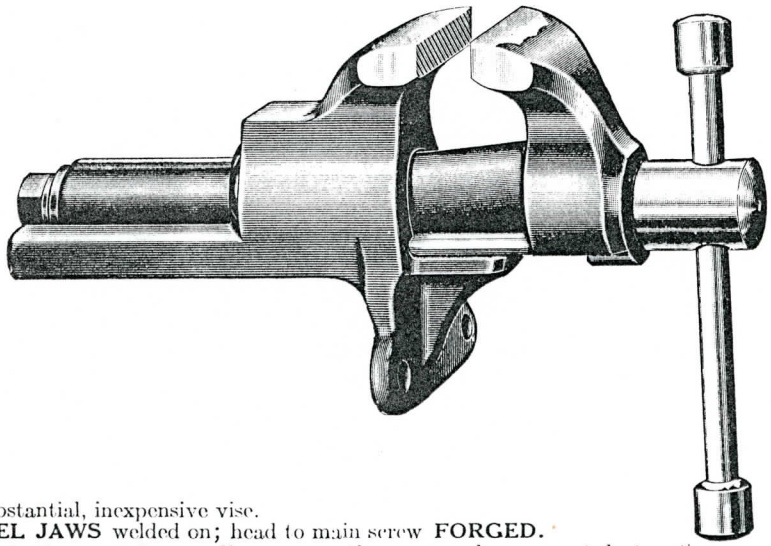
OVAL SLIDE CLAMP VISE



Width of jaw	1¼ in.	1¾ in.
Weight	2½ lbs.	3½ lbs.
Price	$1.00	$1.20

OVAL SLIDE PARALLEL VISE

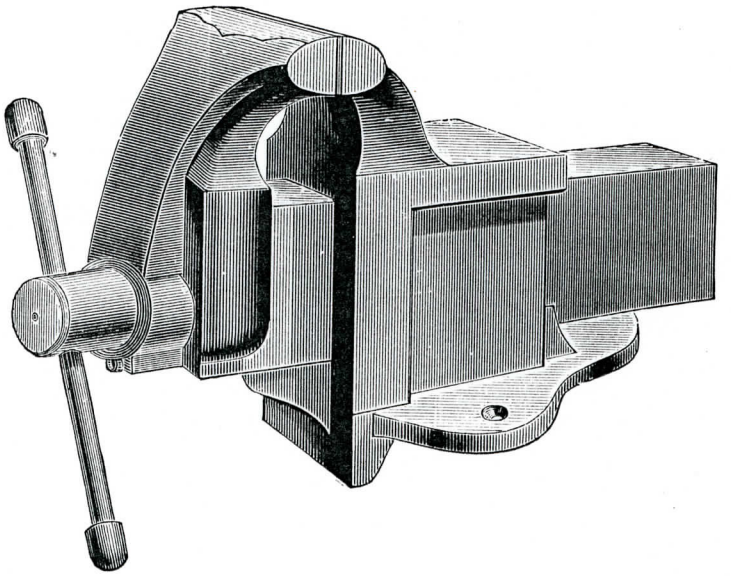
No. 521



A substantial, inexpensive vise.
STEEL JAWS welded on; head to main screw **FORGED.**
A nut in the rear takes up all wear upon the screw and so prevents lost motion.

Width of jaw	2 in.	2½ in.	3 in.	3½ in.	4 in.	4½ in.
Weight	7 lbs.	11½ lbs.	17½ lbs.	27½ lbs.	35½ lbs.	41½ lbs.
Price	$1.50	$1.65	$2.20	$2.85	$4.15	$6.00

MECHANICS' VISE
No. 522



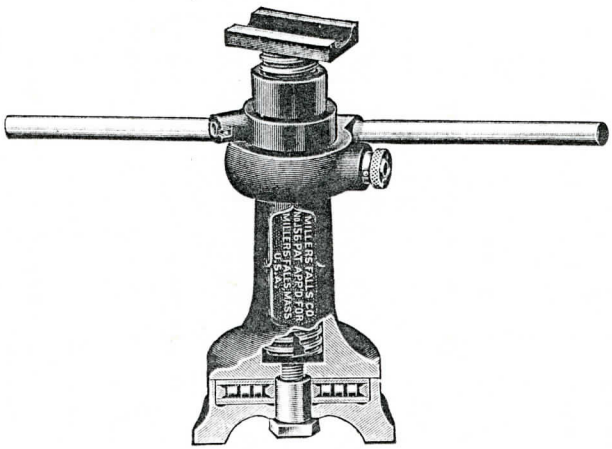
Scientifically designed with **THE GREATEST STRENGTH WHERE THERE IS THE GREATEST STRAIN.**

Detachable steel jaw faces, replaceable if necessary, and steel-faced anvil.

The screw is attached to the vise with a nut which provides for taking up any wear and so obviating any lost motion.

Width of jaw.....	1½ in.	2 in.	2½ in.	3 in.	3½ in.	4 in.	4½ in.	5 in.
Opens.....	1⅝ in.	3½ in.	3½ in.	4½ in.	4½ in.	5 in.	5 in.	6 in.
Weight.....	3½ lbs.	11 lbs.	22 lbs.	41 lbs.	41½ lbs.	54½ lbs.	55 lbs.	78 lbs.
Price.....	**$2.35**	**$3.10**	**$4.60**	**$7.30**	**$8.10**	**$10.00**	**$11.55**	**$13.90**

ROLLER BEARING RATCHET JACK SCREW
No. 155



Cast iron barrel, steel screw and cap or platform.

Within the base, hardened steel rollers in cages and operating between two hardened steel discs.

A steel kingbolt passes through stationary base into the barrel and revolves with the latter.

A ratchet operates either to right or left by turning a knurled knob on the side of the ratchet collar. The plunger or ratchet dog is encased by a steel bushing.

Acme thread on screw perfectly cut and meshing correctly with the barrel.

Cap or platform is concave, adapted to axles or other rounded surfaces. The cap is set fast to the screw and the two remain stationary while the barrel is revolved around the latter.

An automatic stop prevents the screw from being turned out of the barrel when at its topmost point.

This Jack Screw is made especially for raising automobile trucks, railway cars (freight or passenger), etc., and is the most inexpensive and efficient tool made for the purpose.

Minimum height, 11⅜ inches; maximum height, 18 inches; weight, 22¾ lbs.; estimated lifting capacity, 15 tons. (The lever ordinarily furnished is 17 inches in length and is not recommended for more than a 7-ton load, but when ordering for greater loads, a 3-foot tool steel lever is furnished at additional cost.)

Price, each, with lever, **$7.00.**

JACK SCREWS

The easiest acting and best constructed jack screws on the market.

Barrels of cast iron; screws of **STEEL; THREADS ON THE SCREWS LATHE CUT.**

Nos.	Diameter of Screw. Inches.	Height of Barrel. Inches.	Minimum Height of Jack. Inches.	Net Rise. Inches.	Maximum Height of Jack. Inches.	Weight. Lbs.	Estimated Lifting Capacity. Tons.	Price With Lever.	Price Without Lever.
1	1¼	6	9	4	13	8½	5	$2.20	$2.00
2	1¼	7	10	6	16	9½	5	2.50	2.30
3	1½	7	10¾	5	16	16	8	2.70	2.50
4	1½	9	12¾	7	20	20½	8	3.10	2.90
5	1½	11	14¾	9	24	22½	8	3.20	3.00
6	1¾	9	12¼	6	18	22½	12	3.40	3.10
7	1¾	10½	14¼	8	22	25	12	3.60	3.30
8	1¾	12½	16	10	26	29	12	3.90	3.60
9	1¾	14½	18¼	12	30	32	12	4.30	4.00
10	2	8	12¼	5	17	27	15	4.30	3.90
11	2	10	14	7	21	31	15	4.60	4.20
12	2	12	16¼	9	25	35	15	5.30	4.90
13	2	16	20¼	13	33	41	15	6.00	5.60
14	2½	9½	15	8	23	45½	20	6.40	5.70
15	2½	11½	16¾	10	27	50	20	7.10	6.40
16	2½	15½	20¾	14	35	62	20	8.10	7.40
17	2½	19½	25	18	43	75	20	9.50	8.80
CAR JACKS									
17½	2	6	10	4	14	19½	15	$3.90	$3.50
18	2	8½	12½	5	17	25	15	4.30	3.90
19	2	10½	14¼	7	21	29	15	4.60	4.20
20	2	12	16	9	25	35	15	5.30	4.90

N. B.—Jack screws are furnished with levers unless ordered without.

Jack Screw Nos.....	1, 2, 3, 4, 5	6, 7, 8, 9	10, 11, 12, 13 17½, 18, 19, 20	14, 15, 16, 17
Diameter of Lever.....	⅝ in.	¾ in.	13/16 in.	1 in.
Length of Lever.....	17 in.	18 in.	19 in.	24 in.
Weight of Lever.....	1½ lbs.	2¼ lbs.	2¾ lbs.	5¼ lbs.
Price of Lever.....	$0.20	$0.30	$0.40	$0.70

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